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Ontario

Ministry of the Environment

Annual Report 1974-75

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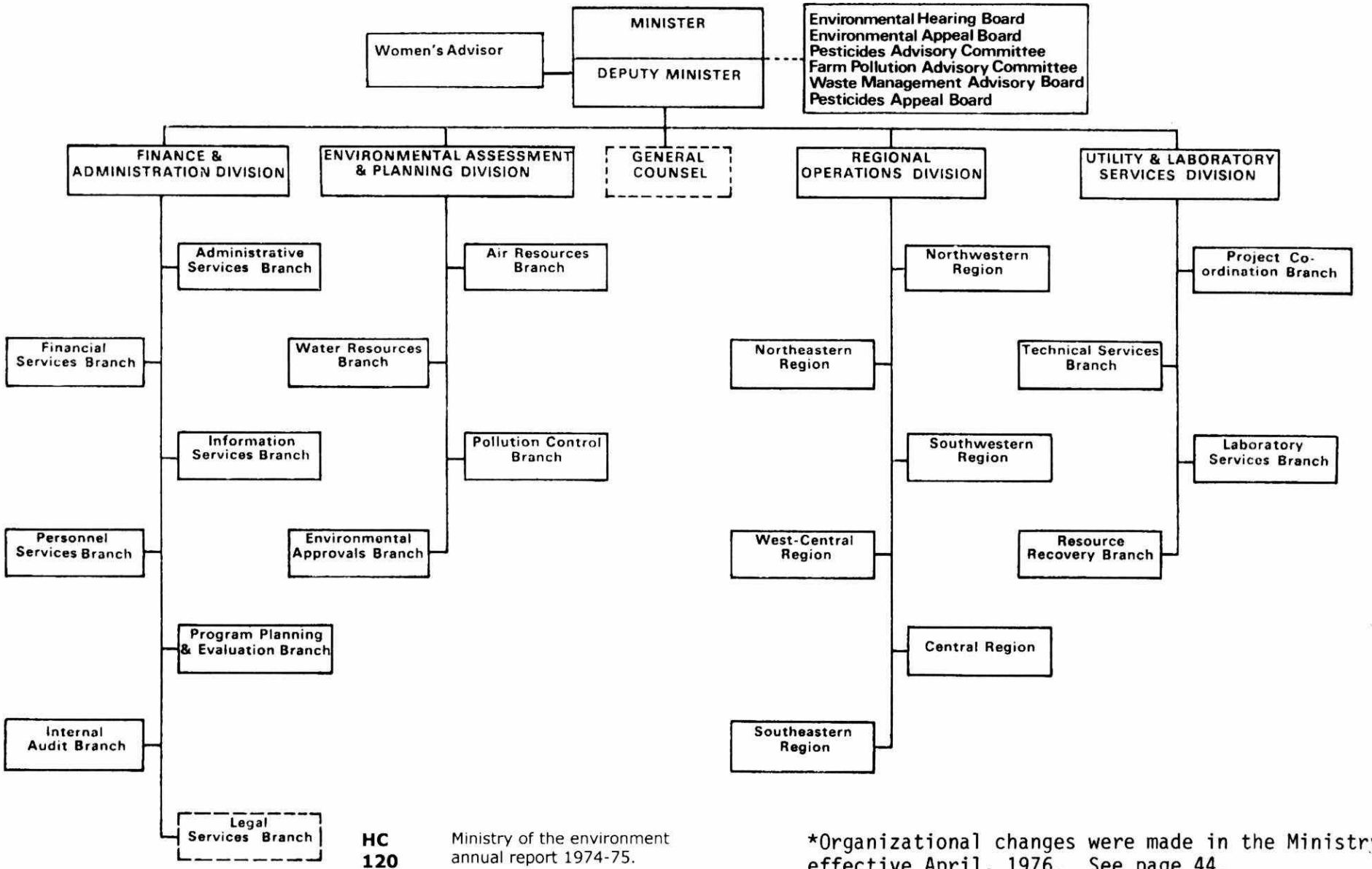
MINISTRY OF THE ENVIRONMENT
1974-1975



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Ministry of the environment annual report 1974-75.

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*Organizational changes were made in the Ministry, effective April, 1976. See page 44.

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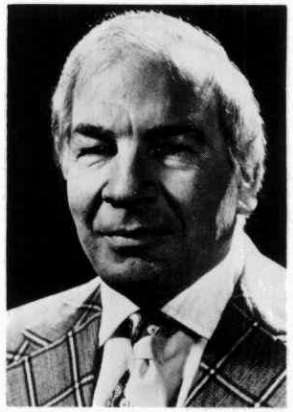


To:

The Honourable
George A. Kerr, Q.C., Minister.

Sir,

I have the honour to submit
for your approval the 1974-75
annual report of the
Ministry of the Environment.

Respectfully submitted,

EVERETT BIGGS
DEPUTY MINISTER

To:

Her Honour,
The Lieutenant-Governor
of the Province of Ontario.

May it please Your Honour,

I have the privilege to present
the annual report of the
Ministry of the Environment
for the fiscal year beginning
April 1, 1974, and ending
March 31, 1975.

Respectfully submitted,

GEORGE A. KERR, Q.C.
MINISTER

progress report

During the past fiscal year, the Ministry has made major strides in three emerging areas of environmental concern: trace contamination, waste management and environmental assessment.

Over the past ten years, science has found that certain man-made substances, such as DDT, mercury and PCBs, -- originally hailed as welcome and useful tools in our progressive society -- have potential serious long-term health effects.

Fortunately, environmental science has also developed to the point where persistent trace levels of these contaminants can be identified and measured. The Ministry is successfully meeting this challenge of detection and control.

With the expansion of its laboratories in June, the Ministry now has the largest and best equipped facilities of their kind in Canada and the installation of two electron microscopes has vastly improved its ability to monitor and assess the levels of trace contaminants in water. The result has been more effective pollution control programs.

In 1974-75, the Ministry's waste management plans also got underway. Designed to proceed over 15 years, the program has two phases: the reclamation of non-renewable resources from solid waste and the conversion of garbage to energy.

Construction of a unique experimental Resource Recovery Plant began in '75 and will be completed by the fall of '76. The plant will be used to research the treatment and reclamation methods necessary to make the project a viable one, will develop markets for reclaimed materials through private interest and will serve in some ways as a model for larger working plants throughout the province.

In tune with Ontario's Energy Management Program, Environment Ontario is also working on the use of garbage as fuel for plants, generating stations and heating systems. An agreement has already been signed with Ontario Hydro and Metro Toronto to construct a Watts From Waste facility at the Lakeview Generating Station in Mississauga which will ultimately turn one thousand tons of municipal waste each day into electrical power.

A record of achievement

Over the past twenty years, the field of environmental protection has grown rapidly from the concern of a few visionaries to the primary responsibility of well-recognized government departments around the world.

In Ontario, the Ontario Ministry of the Environment is responsible for the care and protection of the province's natural environment.

Since the establishment of the Ontario Water Resources Commission in 1958, the formation of the Department of the Environment and their amalgamation into the Ministry in 1972, the Ontario government's studies, legislation and programs have made the province a recognized leader in the environmental field.

Regional Service

In 1974-75, the Ontario Ministry of the Environment entered a new era of more direct service to the people of Ontario with a new regional structure. Regional offices in Thunder Bay, Sudbury, London, Stoney Creek, Don Mills and Kingston and district offices in 23 communities brought Industrial Abatement, Municipal and Private Abatement Services, Utility Operations and some Technical Support Facilities into closer contact with the communities they serve.

This provided local, direct response to municipalities in terms of the operation of water or sewage treatment facilities, the approval of municipal or private waste systems and other local service issues.

The previous distinctions separating air, water and waste problems in Industrial Abatement were broken down and Ministry staff, trained as specialists in the full spectrum of Industrial Abatement, took a more comprehensive approach to pollution control.

Scientific Support

During the fiscal year, increasing attention was devoted to improving the Ministry's capabilities in the detection, analysis and control of environmental contamination in its more subtle forms. The growing knowledge and concern about trace contaminants encouraged the Ministry in developing new laboratory and research facilities, which permit the completion of more than a million sample tests a year. This expansion has created one of North America's most sophisticated and versatile environmental laboratories to serve the Ministry of the Environment's programs.

Expansion of Services

The maintenance and improvement of water quality, and the need for expansion of basic services in support of Ontario's growth, brought an increase in water and sewage construction to produce a capital investment of $127 million.

Where small municipalities are faced with high costs of service from plants constructed by the Ministry, they may receive subsidies up to 75 per cent of capital costs.

1974-75 was the first year of a program of provincial grants, paying 15 per cent of the capital cost of regional water and sewage works in restructured municipalities. This resulted in transfer payments of $4,733,000. An additional $182,000 was transferred as assistance specifically towards joint Ministry-Municipal projects.

New Waste Initiatives

Increasing concern over the rapid growth of solid waste

production in Ontario and the limitations of present waste disposal methods led to some major new thrusts in the areas of waste control and recovery. A new program, Resource Recovery, and a new Ministry branch were launched to develop reclamation of material and energy resources from garbage. This 15-year program ties central research facilities and market development to a long-range program of developing processing and recovery centres to treat and reclaim municipal waste across the province.

At the same time, some industries were given direction to curb the production of waste, and the Waste Management Advisory Board, composed of citizen members, was appointed to monitor this progress and to study specific areas of waste generation as well as some handling and recovery issues.

Legislation

Changes to existing legislation and the introduction of major new legislation brought new responsibilities to the Ministry, new services to the people of Ontario and a significant advance in the cause of environmental protection in this province.

Part VII of The Environmental Protection Act, 1971, was proclaimed to permit the Ministry to provide and maintain uniform provincial standards for private sewage systems across the province.

The Pollution Abatement Incentive Act, due to expire April 1, 1975, was extended for a year to continue a system of grants encouraging the installation of pollution control equipment.

Amendments were made to The Environmental Protection Act to provide for municipal control of noise pollution.

The Environmental Protection Act and The Ontario Water Resources Act were amended to accommodate significant new legislation -- The Environmental Assessment Act.

The new legislation, enacted in 1975, provides for the identification, review and control of the environmental effects of a proposed undertaking for the purpose of environmental protection.

Equal Opportunity For Women

In June, 1973, the Ontario government issued a green paper entitled: "Equal Opportunity for Women in Ontario: A Plan for Action" and established the Women Crown Employees Office. A Women's Advisor in the Ministry of the Environment was appointed to act in liaison with that office.

Since October 31, 1974, the Ministry of the Environment Women's Advisor has explained an Affirmative Action Plan at managers' meetings, involved women in the Ministry in career development workshops, worked with Ministry information staff on a special issue of an internal Ministry publication devoted entirely to women's issues, and as well, has counselled some women in the Ministry on matters concerning their careers.

As a part of International Women's Year, the Ministry decided to produce a film to emphasize the wide scope of career possibilities for women in the environmental field. The film will be used for recruitment and by teachers and guidance counsellors to encourage young women to enter science and engineering professions.

environmental assessment and planning division

The division audits the performance of the Ministry's operational programs, investigates the capacity of the environment for assimilating various types and quantities of contaminants and investigates new means of treating pollutants before they are discharged into the environment.

Over the past year, the division has played a significant part in the development of a new system of environmental assessment. Staff has also maintained and improved the Ministry's systems for monitoring contaminants of the air, land and water. The assessment of the monitoring has provided a firm foundation for abatement and control activities by Regional Operations Division and a reliable audit of the effectiveness of control and abatement measures.

1975 has seen significant advances in the Ministry's capacity to detect, measure and assess newly discovered types of pollution and closer links with environmental medicine and other agencies throughout the world has provided a better understanding of the nature and effects of various trace contaminants.

The division also maintains liaison with Canadian authorities and U.S. federal and state environmental officials to advance the progress of co-operative pollution control programs through the International Joint Commission and under federal-provincial and international agreements.

AIR RESOURCES BRANCH

The branch provides many of the assessment services in the control of man's impact on the air environment by (a) curtailing undesirable effects (b) monitoring contaminant levels and (c) research and development efforts to ensure acceptable air quality throughout the province.

Enforcement and surveillance are the responsibilities of Regional Operations.

Air Quality and Meteorology Section:

During 1974-75, the network of air quality and meteorological monitoring stations was extended with new API stations in Windsor and Niagara Falls. In the Sudbury district, the Happy Valley station was moved to Coniston.

The Air Pollution Index is now issued regularly for Toronto, Hamilton, Windsor, Sudbury, Welland, Niagara Falls and Coniston.

The number of instruments in service increased from 975 in 1974 to 1,017 at the end of 1975, with more sensitive instruments based on chemilluminescence replacing instruments measuring oxidants and nitrogen oxides. A report on the air quality across Ontario was published in four volumes.

The monitoring program near lead smelters in the province was expanded and monthly reports issued on lead levels in the vicinity of Toronto's lead plants. Staff participated in the preparation of the Working Group Report on Lead and in the Environmental Hearing Board Public Hearings on Lead.

The air pollution emission inventory information system was updated and expanded to cover Metropolitan Toronto, Hamilton and the Niagara Peninsula.

Modelling of traffic simulations to predict concentrations of carbon monoxide were used to prepare an air quality impact study of various transportation plans in

Metro Toronto. A report was completed describing the effects of Toronto's transit strike on the air quality in the city. The branch continued to co-operate with U.S. air pollution control agencies in investigating air pollution crossing the border at the Niagara, St. Clair and Detroit Rivers.

Technology Development Section:

The section conducts special projects to determine the effects of specific air pollutants on the environment. It is involved in the development of instrumentation for ambient air monitoring and source testing with special emphasis on remote sensing. The section is also responsible for identifying latent and potential future problems of air pollution in Ontario and conducts investigations into the effects of unusual and hazardous materials.

In 1974-75, 16 special air quality surveys were conducted including the monitoring of such contaminants as lead, zinc oxide, polynuclear hydrocarbons, total and reactive hydrocarbons, sulphur dioxide, hydrogen sulphide and oxides of nitrogen. One survey was conducted in Minnesota jointly with state authorities.

Over 50 field tests of emissions were inspected by the Source Testing Unit and over 400 test runs evaluated.

Several urgent short-term studies were completed including emission control methods for asphalt plants, electrostatic precipitators for odour control, emission control methods for asphalt plants, and emission control of vinyl chloride and asbestos.

In addition, a comprehensive report on lead in the vicinity of secondary smelters was completed. A road study was conducted and a report on automotive sources and re-entrainment of dust was prepared. A field experimental program to determine the emissions, plume dispersion and chemistry and effects of pollution on the environment was conducted in Sudbury as part of the Sudbury Environmental Study.

A total of $280,000 was granted to Ontario universities to support environmental research programs and seminars organized to review progress in the fields of atmospheric chemistry, development of instruments and methods control technology and the effect of smelter emissions on environment. Several research projects were carried out jointly with Environment Canada.

Criteria Development and Program Planning Section:

The section recommends revisions to existing legislation; ensures that published air quality objectives are consistent with current knowledge of physiological, vegetative and other adverse effects of air pollution; issues design standards for the assessment of contaminant emissions from specific industries and, where necessary, recommends industry-wide regulations for control of such emissions.

In 1974-75, activities included evaluation of the legal acceptability of various proposals relating to district heating in Metro Toronto; preparation of guidelines for assessment of cooling towers at the request of Industrial Approvals Section; initiation of a study into wind-blown dust from large storage piles (e.g. coal); and the writing of dispersion calculations to incorporate the requirements of new regulations (R.R.O.15/70 as amended by O. Reg. 873/74).

Standards and guidelines development included completion of a major revision of Ontario Regulation 15, R.R.O. 1970 and revision of the list of ambient air quality criteria. The list of design standards for air contaminants was increased from 20 to 84. Guideline values or tentative design standards for seven new air contaminants were issued. The section participated in the activities of the Safety Advisory Committee on the Uranium Hexafluoride Plant of Eldorado Nuclear Ltd. at Port Hope in assessment of the proposed extension plans and, in addition, assisted the Safety Advisory Committee on the operation of the Bruce Heavy Water Plant and proposed expansion plans for the unit by Ontario Hydro.

Tentative guidelines for control of drum mixer asphalt plants to be operated for the 1975 paving season were established.

Vehicle Emissions Section:

Concerned primarily with the control of the emission of pollutants from all motor vehicles, the section last year carried out spot-checks of nearly 10,000 vehicles at the Castlefield Avenue Test Centre in Toronto. In addition, the section operated an experimental test lane at Downsview in conjunction with safety lane inspections of the Ministry of Transportation and Communications. Out-of-town inspections were made during the summer at ten locations. Staff also investigated numerous complaints concerning the illegal sale of vehicles without pollution control equipment, and made a number of random spot-checks at dealerships in Southern Ontario.

Those stopped in spot-checks were given copies of a new pamphlet explaining the reasons for the inspection and remedial action that may be taken where applicable.

On behalf of the Ontario Development Corporation, Ministry of Consumer and Commercial Relations, the section checked out the usefulness of certain automotive add-on devices and fuel additives, claimed to be combustion improvers and pollution reducers.

With the help of the Ontario Provincial Police, 830 trucks were stopped with 105 warnings issued for smoke emissions and 725 vehicle owners charged. In addition, staff members visited transport companies to assist in solving problems of excessive vehicle smoke.

Phytotoxicology Section:

To provide a comprehensive knowledge of the effects of air pollution on vegetation throughout the province, the section investigated 247 soil and vegetation complaints in 1974-75. Contaminants found causing pollution included fluorides, chlorine, sodium chloride, sodium sulphate, lead mercury, silver, arsenic, cadmium, zinc, nickel, cobalt, sulphur dioxide, sulphuric acid, ammonia, magnesium-lime dust, fertilizer dust and iron oxide. On two occasions fluorides were found to have affected livestock.

Salt damage to vegetation was investigated from a number of sources, including highway spray, storage piles, seepage from sand-salt piles, seepage from fur dressing operations, and salt cake emitted from pulp and paper operations. Soil effects caused by a sulphuric acid spill from a train derailment near Pelham were measured on several adjacent farms. Fluoride damage to vegetation was found in the vicinity of fertilizer, brick, aluminum hexafluoride, and hydrofluoric acid manufacturers. Acute sulphur dioxide injury to vegetation was discovered near pulp and paper mills and nickel, copper and iron concentrators and smelters.

Where the section was able to confirm reports of pollution-caused damage, reports were sent to regional Industrial Abatement staff for action as well as to the complainants, offending sources and the Board of Negotiation to settle on compensation payments. About one-half of the damage reports received from the public were found to have been caused by agents other than environmental conditions -- disease organisms, insects, physiological disorders and natural causes. For example, widespread browning of white cedar trees in Southern Ontario was diagnosed as being caused by leaf miner insects. Likewise, widespread occurrence of a white powder on vegetation and fallout of sticky substances was found to have been caused by powdery mildew fungus and aphid secretions respectively.

Ecological surveillance programs were carried out both in the vicinity of existing air pollution sources and future proposed major sources. A total of 2,357 surveillance station visits were made in Ontario in 1974-75. On both complaint and surveillance visits a total of 9,898 samples were collected for processing and examination

by phytotoxicology analysis procedures.

At the request of Industrial Abatement engineers, 83 potential sources of contaminants in Southern Ontario were investigated for the degree and extent of soil and vegetation effects in their immediate vicinity. Control orders and conditional approvals were served to fluoride and lead sources based on compliance with phytotoxicology guidelines. Comprehensive reports were prepared on lead contamination of soil and vegetation in the vicinity of several secondary lead industries in the Metropolitan Toronto area for the Environmental Hearing Board.

A number of surveys were conducted for the occurrence and incidence of photochemical oxidant (ozone and PAN) injury to farm crops in Southwestern Ontario. An area of approximately one million acres displayed evidence of light to moderate ozone injury on white bean crops under cultivation. The "ozone bronzing" of white bean crops was less severe in 1974 than in 1973. Tomato crops were observed to display peroxy-acetyl nitrate (PAN)-type injury along the north shore of Lake Erie from Harrow in the southwest to the Niagara peninsula in the east.

Several greenhouse and growth chamber phytotoxicology research studies were undertaken to assist in the diagnosis of field-observed vegetation injuries and in the derivation of air quality criteria and standards.

WATER RESOURCES BRANCH

The broad role of the branch is to develop overall water-quality and water-quantity policies, guidelines and criteria to ensure adequate supplies of good quality water for the people of Ontario.

Planning and Co-ordination Section:

The section co-ordinates the planning of major co-operative water resources management studies carried out by regional and head office staff. Specific technical assistance is also provided for the planning, execution and data evaluation phases of individual studies. Specialized technical advice is made available in the Water Resources Impact Assessment program in such areas as the aquatic environmental impact of marine construction, municipal and industrial wastewater disposal and heated wastewater discharges.

In 1974-75, the Thames River Water Management Study, undertaken jointly by the Ministries of Environment and Natural Resources in 1972, was substantially completed. The need to upgrade water quality, reduce flooding and erosion problems and plan to meet future development are primary challenges facing the Thames River Basin.

The Lower Great Lakes Study is a continuing, cost-shared program with the federal government for the surveillance of water-quality conditions along the Ontario Great Lakes shoreline from Sarnia to Cornwall. During 1974-75, major surveys were undertaken on the St. Clair and Detroit rivers with intensified sampling used to improve the precision of phosphorus loading estimates to assess progress in the phosphorus removal program. Surveys were continued in Lake Erie for a more comprehensive view of recent changes in lake quality. Other activities included sampling of the Duffin Creek confluence with Lake Ontario which has provided baseline data in advance of the proposed development in North Pickering; continued examination of mercury levels in the St. Clair River system sediments; and final drafting of a report on water quality in Wheatley Harbor and Talford Creek.

The Upper Great Lakes Study, continued by international agreement since 1972, involves the section in a number of programs. In 1974-75, five project reports on the findings of surveys in Lake Superior and the majority of survey efforts on Lake Huron were completed.

Limnology and Toxicity Section:

The unit performs a wide range of routine and special studies into the relationships between aquatic organisms and the chemical and physical characteristics of

the water environment.

Last year, aquatic weed harvesting in Lower Chemong Lake continued with 700 acres cut. Research was started at the University of Guelph to find uses for the plants as compost and animal feed.

Lime additions were carried out in the Sudbury Lakes to maintain the pH. It was shown that the addition of calcium carbonate provides long-term stability of the pH while calcium hydroxide gives short-term adjustment. In addition, toxicity studies were continued to determine the long-term effects of metals on fish in the pH-adjusted lakes.

Destratification was carried out in two experimental lakes with considerable improvement noted over previous years in water clarity in both cases.

Also, during 1974-75, an effluent hauling system was built which allows for detailed toxicity testing of industrial effluents from up to 250 miles from the laboratory.

As part of an on-going program, phyto-plankton data was collected from water works intakes in the Great Lakes with results showing decreasing algae in parts of Lake Erie likely due to phosphorus removal programs. A report was prepared on the effects on water quality in Gravenhurst Bay of phosphorus removal at the Gravenhurst Sewage Treatment Plant -- quality was found to be improved with less algae and greater clarity.

Hydrology and Monitoring Section:

The section contributes to the development of policies and guidelines relating to groundwater protection, environmental assessments concerning groundwater, water takings and the resolution of interference complaints. It also co-ordinates and directs the operation of water quality and quantity networks across the province, provides for the assessment and management of inland rivers, lakes and groundwater resources and provides guidance for the use of remote sensing techniques as applied to geology, hydrology and hydrogeology.

It provides geotechnical support to Ministry hydrogeological and groundwater development programs, technical expertise in examining complex groundwater contamination problems, technical assistance in major drainage basin inventory studies and technical advice for special water resource studies as well as arranging the development of data management systems to handle the interpretation of hydrometric data for water quality and quantity assessment and management programs. It also provides a significant proportion of the Ministry's contribution to the IJC-PLUARG program and administers a program for licensing water-well contractors across Ontario.

During 1974-75, activity was concentrated on regionalizing programs which had previously been administered centrally, and in establishing working relationships with regional staff.

Geotechnical Services:

The prime function of the unit is to provide geotechnical support during the development of groundwater supplies and during investigation of groundwater contamination problems. The unit also develops and evaluates new geotechnical techniques that relate to hydrogeologic studies and provides guidance in the use of remote sensing techniques.

In 1974-75, well logging surveys were carried out in the Lansdowne, Cannington and Duffins/Rouge areas; seismic and resistivity surveys in Wilton Creek, Ernestown, Gravenhurst, Bradford, Sudbury and South Gloucester areas, and a magnetic survey at Sarnia.

Additionally, a fluid resistivity probe was designed for use during down-the-hole well logging programs; a draft report "Case Histories in the Application of Geophysics to Ground Water Problems" was prepared; and ground-truth information was collected during

over-flights of the Bowmanville area as part of a co-operative program with the federal Department of the Environment to study remote sensing techniques to measure soil moisture and snow water equivalents.

Pluarg:

The Pollution from Land Use Activities Reference Group surveys selected watersheds to determine the source of certain pollutants, their significance and the adequacy of present control measures controlling their entry to the Great Lakes system.

In the last year, base networks for monitoring stream-flow and water quality were set up at 65 stations. A hydrologic investigation of a sanitary landfill site in the Township of Ernestown was carried out. The unit participated in discussions by a technical committee with representatives of the federal Department of the Environment in support of studies into the effects of leachates on water quality under the Canada-U.S. (IJC) Agreement.

Groundwater Protection:

The unit develops policies for the prevention of ground-water contamination. It is also responsible for the licensing of water well contractors and the developing of regulations to ensure adequate well-construction practices.

During the last fiscal year, draft guidelines covering the hydrogeologic evaluation of sanitary landfill sites were prepared. Material was gathered on gasoline and salt contamination of wells and aquifers to assist in the establishment of guidelines for better storage and handling methods. Assistance was given to regional representatives in investigation of sanitary landfill sites and in field assessment of groundwater contamination caused by gasoline leakages, salt pile storage and road salting.

Water Quantity:

The unit participates in the on-going program of major drainage basin inventory studies across Ontario. The unit assists in developing uniform policies for water taking and provides technical assistance in special water resource studies to Ministry representatives and other government agencies.

In 1974-75, final editing of the report on "Water Resources of the Moira River Drainage Basin" was under-taken. Field work was completed in the Duffin/Rouge drainage basin and the initial draft of a report was completed. In addition, planning of water resources inventory surveys was initiated in three large drainage basins -- South Nation River in the Ottawa area, Holland/Black basin south of Lake Simcoe, and the Sydenham River basin in Southwestern Ontario. Studies of the three watersheds will be carried on into the early 1980s.

The groundwater probability map for the County of Haldimand was published and work initiated on the publication for Norfolk County. In liaison with the regions, work on a computerized data bank system to store and retrieve information on permit applications, water use and interference problems was begun. Pre-paration of the final report on the assessment of surface and groundwater resources in Northern Ontario continued. The unit also provided technical ground-water information to the North Pickering Project (NPP).

Hydrometric Networks:

The unit provides guidance for the establishment and operation of water quality and quantity monitoring net-works across Ontario, and for the adequate assessment and management of inland rivers, lakes and groundwater resources. It arranges for the collection, compilation, editing, technical scrutiny, uniform processing and dissemination of hydrometric data from these networks.

In 1974-75, a preliminary review of network stations

was made, primarily in Northern Ontario. Arrangements were made for signing of a new Federal-Provincial Hydrometric Agreement dealing with cost-sharing for all surface water quantity stations operated in the province. There was a successful transition of the field data acquisition from a central to a regional operation. The 1974 Water Year Tributary Loadings were completed for both the Upper and Lower Great Lakes for the 1974 Water Quality Board Report to the IJC.

Water Modelling Section:

Lake Systems:

A major achievement was completion of the Hamilton Harbor Study assessing the long-term trends in water quality and examining means of water quality enhancement. A numerical model, utilizing continuously recording chemistry and current data, was developed and used for the first time.

A coastal-zone water chemistry and currents report was prepared as part of the Nanticoke Environmental Study to assess effects of the thermal generating station on Lake Erie waters. Data were provided to the Ministry of Natural Resources to assist in its fish migration studies.

Also in 1974-75, the effluent plume chemistry dynamics for the Domtar mill at Red Rock (Lake Superior) were studied in support of the fish sub-lethal bioassay experiment. A model was developed for estimating the nearshore/offshore exchange of material for the Great Lakes.

River Systems:

With the conclusion of the International Hydrological Decade (IHD) program, efforts were concentrated on the analysis and simulation of the hydrologic data collected in the five representative basins. Data collection activities were continued in support of the section's work in hydrologic model development. A multi-parameter comprehensive watershed model was completed and applied to the Wilmot Creek representative basin to allow the generation of stream-flow responses to various precipitation events. Analyses of the geologic and hydrogeologic characteristics of the Blue Springs Creek and the Wilton Creek representative basins were completed, all as part of the Ministry's contribution to the IHD program.

Stream water quality models were applied in several watersheds to support the work of the regions in the development of basin water-management policies. Management alternatives and waste assimilative capacities were defined for municipalities in the Thames River, the Middle Maitland River, the Saugeen River and the Ausable River and part of Lake Simcoe. Preparations were made for hydrologic and waste assimilation studies in the Grand River watershed.

To support studies of the Urban Drainage Subcommittee (Canada-Ontario Agreement), assistance was provided in project co-ordination and model development to define the effects of urban storm runoff on receiving water bodies in Southern Ontario.

POLLUTION CONTROL BRANCH

The branch is responsible for the planning and development of policies and programs for the abatement, control and prevention of discharges or emissions of contaminants to the environment and for review and improvement of programs.

The responsibilities of the nine sections in the branch are subdivided in two groups; Policy and Program Development, and Technology Development and Research:

The branch played an active part in the implementation of Part VII of The Environmental Protection Act, participating in administrative arrangements, establishing guidelines and setting up an advisory committee.

Ontario's Contingency Plan for emergency response to accidental discharges of hazardous substances was

revised and the branch continued to work on the development of regional response groups.

A major new thrust in waste management and waste recovery was undertaken in the Pollution Control Branch, with the planning of Watts from Waste, a demonstration project to use garbage as a fuel supplement in power production at Lakeview Generating Station and the development of a Resource Recovery program for Ontario. The Resource Recovery Unit moved from Pollution Control towards the end of the fiscal year to be established as a separate branch within the Utilities and Laboratory Services Division.

POLICY AND PROGRAM DEVELOPMENT GROUP

Municipal and Private Section:

The section assesses the effectiveness of municipal sewage and water supply, promotes sewage and solid waste programs and plans, develops and assists in the implementation of new policies, programs and legislation. It is composed of three units, each with distinct areas of responsibility.

The Municipal Sewage and Water Supply Units made marked progress during 1974-75 on the development of a master computer system to help assess programs in its field.

Activities continued under the IJC Upper Lakes Reference Group in its assessment of pollution problems in Lakes Huron and Superior. There was increased liaison with Environment Canada and Central Mortgage and Housing Corporation in support of their programs in the municipal sewage field.

The Canada-Ontario Agreement progressed through its fourth year with significant progress being made, in co-operation with Environment Canada, in the investigation of new and improved sewage treatment processes. By the end of the fiscal year, 116 sewage treatment plants were undertaking phosphorus removal on schedule. Major areas of research under the agreement included phosphorus removal, identification and control of pollution from urban drainage and potential pollution and health effects of sewage sludge when applied to crop-producing soils.

Work continued on evaluation of removal techniques for asbestos in water supplies. In addition, studies were initiated to assist in the implementation of the policy requiring treatment of wastewaters originating from water treatment plants.

The Private Sewage Unit worked on the development of Part VII of The Environmental Protection Act, proclaimed in April, 1974. Responsibility for private sewage disposal and the regulations governing these systems passed from the Health Units to the Ministry. The responsibilities for implementation were subsequently delegated by agreement to the Health Units.

The Advisory Committee on Private Sewage Disposal Systems, comprised of representatives from the Ministries of Health, Housing and Environment and the Health Units, was established to effect better co-operation in the provision of adequate sewage treatment for private households.

Regulations, guidelines and supporting administrative procedures covering private sewage disposal systems were published.

Section staff worked with the regions on policy and program development relating to pleasure boats, marinas and ice fishing shelters.

Solid Waste Unit staff continued to work closely with other Ministry branches and the federal government in studies of pollution from sludge application and leachate from landfill sites as part of the IJC Pollution from Land Use Activities investigations.

Work progressed on the development of interim guidelines for the application of sewage treatment plant sludges on food-producing lands. Long-term studies continued

to be carried out at the University of Guelph with emphasis on nutrient availability and effects of heavy metals on soils and crops.

A pilot project in the Timiskaming area was initiated to assess techniques, costs and problems associated with the introduction of a program to collect derelict motor vehicles throughout the province for recovery and reuse of metal components. These studies were required as a prerequisite to a full program.

The Waste Management Advisory Board was created to advise the Minister, with initial emphasis on packaging and refillable containers. The second year of the anti-littering campaign continued with the collection of field data on the makeup of litter and a Data File was initiated.

During the fiscal year, the responsibility for area solid waste planning and waste recovery studies and development was shifted from the Pollution Control Branch to the new Resource Recovery Branch in the Utilities and Laboratory Services Division.

Industrial Section:

The section has as its prime responsibility liquid gaseous and solid emissions to the environment from industrial and institutional sources.

During the fiscal year, the problems of liquid industrial waste disposal and waste oil utilization and disposal were examined. A provincial plan was developed for liquid industrial waste disposal and implementation is proceeding.

A revision of the Model Sewer-Use Bylaw was undertaken jointly with the Municipal Engineers Association with the intention of promoting uniform bylaws within municipalities throughout the province.

A number of guidelines for controlling emissions from industrial operations were prepared. These are intended for the guidance of Regional Operations and Industry to ensure a uniform approach across the province.

The section provided representation on a number of technical committees. These included a committee established to revise the Agricultural Code of Practice and a Technical Committee of Ontario Feed and Grain Dealers established to review the results of a grain dryer study conducted at the University of Guelph.

An Electrical Power Review and Co-ordinating Committee was established by the section to assist in the development of policy and procedures for pollution abatement and control at existing Ontario Hydro facilities. As a result of the committee's work, Ontario Hydro has agreed to a standardized approach to monitoring and reporting of all aqueous discharges associated with thermal and nuclear generator stations.

Pesticides Control Section:

The Pesticides Control Section promotes a balance between pesticide use and environmental protection. The prime responsibility of the section is the safe use and management of pesticides in Ontario through licensing of exterminators and vendors; through issuance of permits for use; through education of the public with publications and industrial and commercial areas with training course, fact sheets and study guides.

The programs of the Pesticides Control Section are carried out under The Pesticides Act 1973 and Ontario Regulation 618/74 implemented in September, 1974. The legislation incorporates the relevant sections of The Environmental Protection Act and The Water Resources Act. Copies of the new Act were distributed to all licensed exterminators, vendors and operators as well as to all interested groups.

The licensing program which involves providing appropriate study materials, examining applicants and licensing qualified applicants to apply, store, or sell pesticides was continued.

The total number of licenses issued was 9,675. This includes 795 for operators, 4,435 for land exterminators, 516 for structural exterminators, and 3,929 for wholesale and retail vendors.

These licenses were issued under the classification as outlined in The Pesticides Act and Regulation. The system combines several previous classes of land exterminators into one class but subdivided the structural class into two. This is reflected in the numbers of licenses issued this year over those issued in 1973-74.

The total number of permits issued was 322. These permits were issued for the use of restricted pesticides such as methyl bromide and cyanogas as well as for special experimental purposes as directed under The Pesticides Act. In addition, 150 permits were issued for the application of herbicides to nuisance aquatic vegetation in recreational lakes. In this last area, over 1,500 inquiries were handled with respect to problems of lake and pond management.

Guidance and assistance was given to Orillia to initiate a mosquito control program using a larvicide for spring species. This pilot project is described in the report "Mosquito Control, A Larvicide Program for Spring Species: Orillia 1974."

The Education and Information Unit has been active in efforts to co-ordinate study material and publications with The Pesticides Act and Regulation. New courses have been outlined for the classes of water exterminators which are now included under The Pesticides Section supervision, in addition to revision of existing information.

As well, many seminars and lectures were given for various sectors of the pesticides industry, levels of government and general public to familiarize these people with changes in pesticides legislation.

A conference was organized by the Pesticides Control Section in co-operation with the American Association of Cereal Chemists, Bakery Council of Canada, Canadian Institute of Food Science and Technology (Toronto), Environmental Management Association (Toronto), Grocery Products Manufacturers of Canada, Ontario Milk and Food Sanitation Association to discuss legislation, pest problems and control in many areas of the food industry.

Because of the re-classification of exterminators under The Pesticides Act and Regulation, a special seminar was organized on current research, control methods and status of infestations of termites. The seminar was a qualifying requirement for structural exterminators working on termite treatment.

A Pesticides Symposium was held in co-operation with Landscape Ontario and the Ontario Golf Superintendents Association dealing with aspects of turf management, weed control and insect control on ornamental trees and shrubs.

A course was conducted with The Ontario Good Roads Association for roadside sprayers. New publications prepared this year for general distribution to the public are "Ants," "Carpet Beetles," "European Earwig," "Fleas, Lice and Bedbugs," and "Aquatic Plant and Algae Control." Two reports were published on data collected throughout the year. "Aquatic Nuisance Control in Ontario, 1974" summarizes the use of pesticides as permitted by the Pesticides Control Section for addition to water areas. "Mosquito Control, A Larvicide Program for Spring Species: Orillia 1974" outlines the procedures carried out in this experimental program with the assistance of the Aquatic Nuisance Specialist. One publication was revised and prepared jointly with the Ministry of Natural Resources: "Controlling Mosquitoes and Black Flies in Ontario."

Noise Pollution Control Section:

The section is responsible for the planning and delivery of the Ministry's Noise Control Program in line with previously set priorities. The section researched the control of vehicle noise and the control of stationary noise sources.

A decision was made to give Ontario Municipalities additional powers to control noise at the local level once a new Municipal Noise Control Program was developed. Accordingly, The Environmental Protection Act was amended to provide for noise control and this amendment was given Royal Assent in February, 1975.

In addition, a draft Model Municipal Noise Control Bylaw was prepared and mailed to all Ontario municipalities as well as being widely circulated to the public and to professional and trade associations. Preparations were made to hold a series of regional workshops to explain the intent of the bylaw and to assist municipalities in writing a bylaw and training personnel.

The section's other assigned task was to investigate noise complaints and obtain abatement of specific noise problems while developing an investigatory and abatement procedure for field personnel. In 1974-75 the section investigated 507 noise complaints. About 300 complaints (mostly involving air conditioners) were satisfactorily settled with voluntary co-operation from offenders. Certain cases such as heavy arterial traffic noise and other causes such as blasting, gun shots and drop-forge vibrations proved beyond simple solution.

A special training course in Acoustic Technology for designated municipal personnel was developed with training manuals written by section staff. In addition, the Impact Analysis Unit carried out several transportation (rail, air and road) noise studies that will be used to develop criteria and prediction technique for landuse assessment problems.

Contingency Planning Section:

The section plans, co-ordinates and provides technical consultation for the development of contingency plans and to meet specific problems with accidental discharges of hazardous substances.

The Province of Ontario Contingency Plan for Spills of Oil and Other Hazardous Materials was developed to final draft stage during 1974-75. The plan, released during the fall of 1975, was co-signed by the Ontario Ministries of the Environment, Health, Consumer and Commercial Relations, Natural Resources, Transportation and Communications, Solicitor General, and the Federal Department of the Environment and the Ministry of Transport. The new plan reflects the improved response capability of the Ministry of the Environment and recent developments in contingency planning in other jurisdictions at the federal and municipal government levels as well as developments in the private sector. The section also prepared publication Supplement I to the Provincial Plan entitled "Information on Commercially Available Oil Spill Containment and Cleanup Equipment" and Supplement II to the plan entitled "Municipal Contacts."

A significant portion of the section's time was allocated to the participation in "Operation Preparedness," a project co-ordinated by Environment Canada which will result in the development of an operational manual for spills on the St. Clair and Detroit Rivers.

Statistics assembled and analysed on the various spills which occur in the province, indicate that 75 per cent of the 525 incident reports received, involve the loss of liquid petroleum products. These spills can originate from stationary sources or from materials in transit by rail, road, water or pipeline transportation modes.

These ranged in size from those of a few gallons of PCB-type transformer liquid to a spill of 100,000 gallons of sulphuric acid and a spill of 100,000 gallons of crude oil. On the basis of volume, the quantity of other hazardous materials spilled is approximately seven times the quantity of oil spilled.

The so-called average oil spill in Ontario involves the loss of 1,890 gallons; this compares closely to figures released by the United States Environmental Protection Agency which indicate an average loss of 1,810 gallons per oil spill.

TECHNOLOGY DEVELOPMENT AND RESEARCH

Co-ordination and Technology Transfer Section:

The section is responsible for research co-ordination, for dissemination of new technology and for control of external research grants.

During the year a Research Advisory Committee was formed reporting to the deputy minister. Made up of representatives from Ministry branches involved in research activities, it reviews and makes recommendations on research policy, programs, resources and priorities, and on meeting the requirements of the new management board research policy.

Wastewater Treatment Section:

The section advances the quality of wastewater treatment. To this end, it performs two main functions -- maintaining and continually upgrading the level of expertise in wastewater treatment technology, and providing advice and assistance to planning, control and operational staff of the Ministry, municipalities and industry based upon the best available technology.

The section maintains an analytical laboratory and the Ontario Experimental Facility, a 5.0 MGD activated sludge plant for use in development research work.

During the year, effort was directed primarily toward commitments to developmental research work under the Canada-Ontario Agreement. Projects were generally aimed at providing means for obtaining wastewater treatment plant effluent qualities beyond processes now available. Specific projects included nitrogen removal, physical-chemical treatment, lagoon upgrading, carbon regeneration, effluent disinfection and effluent polishing. The section became involved with combined and storm sewer flows in studies dealing with quality and quantity determinations and storm-flow treatment techniques.

Technical advisory work was closely related to the achievement of the province's phosphorus removal program. There was also increased activity in the upgrading of effluent quality and problems encountered with newly operating phosphorus removal facilities.

Water Technology Section:

The study on the direct filtration water treatment process was completed and a final Research Report published. A technical paper based on this work and published in the American Water Works Journal, received the AWWA Publications Award for 1974 for the most notable contribution to the science of public water supply development.

The Canada-Ontario Agreement study on the magnitude and types of water treatment plant wastes passed the data collection stage and a draft report was completed in August, 1975.

Work continued on data gathering for the investigation of the microbiological quality of treated water throughout various water distribution systems in the Toronto area. Also involved with distribution systems is an investigation of the occurrence and methods of controlling small animals (snails, nematodes, etc.) in watermains. This study is being carried out at municipalities where foam swab cleaning of watermains is being undertaken.

Further examinations of the use of ozone for water treatment were carried out. A pilot plant was set up at the Smiths Falls water plant to investigate ozonation as an alternative to conventional alum coagulation for the removal of color. The plant intends to continue ozone work using a newly developed ozone/water contactor; section staff will assist in program development and interpretation.

A study on the removal of chrysotile asbestos from raw water supplies was begun. Good removal was achieved on a pilot plant scale following optimization of the conventional water treatment processes. An action plan on

asbestos was devised for the Ministry and the investigation is soon to move to the full-scale water plant stage.

An Ontario-wide survey of the occurrence and methods of removal of chlorinated organics in water supplies was begun.

The dissolved-air flotation process was studied with regard to potable water treatment in place of the conventional sedimentation stage. Difficult-to-settle solids such as certain types of algae could prove to be simpler to treat by this process.

A study into the occurrence of parasite cysts and ova in sewage sludges was begun.

The technical advisory work involved numerous water treatment plant process problem studies at the request of the regional offices or municipalities. These investigations involved such topics as: assisting in the repair of a plugged filter under-drain system at Goderich; cleaning iron-fouled filter media at Moonbeam; assisting in the commissioning of a new plant at Sudbury; total water treatment process review and modification at Ohsweken and expanding knowledge of the sodium silicate sequestering of iron through the investigation of borderline water supplies which are being treated. This relatively inexpensive process is presently being used in installations where the well water quality was too poor to warrant housing expansion in small municipalities without costly treatment.

A substantial portion of the section activities was taken up with the Training & Licensing Program. Staff developed and presented a new course -- Surface Water Treatment Workshop and assisted in the Basic Water Treatment, Basic Sewage Treatment and Gas Chlorination Workshop courses.

Applied Sciences Section:

The Applied Sciences Section investigates and reports to management on innovative and unusual concepts and processes with regard to their possible application to control and regulation of water supply and treatment, sewerage and sewage treatment and water, air and soil resource use.

During the past year, 18 investigations were under active consideration, six of which were concluded, resulting in the publication of eight project reports.

In response to increased demand for rural and cottage development, with attendant requirements for on-site sewage disposal, eight of the 18 active projects were related to such disposal systems and their impact on the environment.

In addition to the project work, staff are involved in providing consulting services to the Ministry staff. The work resulted in approximately 50 formal memorandum reports.

As part of the regular investigations, a chemical dosing device for home use was devised and is now being patented.

ENVIRONMENTAL APPROVALS

The branch was established on April 1, 1974, primarily to facilitate the process whereby individuals and organizations seek and receive approvals from the Ministry for a range of activities affecting or having the potential to affect the natural environment. The branch has the following responsibilities:

1. The review and approval of applications to the Ministry required under The Environmental Protection Act and The Ontario Water Resources Act.

2. The development of guidelines for acceptable industrial, municipal and private waste disposal systems.

3. Ensuring that environmental safeguards are incorporated into landuse policies and programs of the Ministry.

4. The evaluation at the conceptual planning stage of activities by the ministries of government, utilities and projects funded by the government and related activities in the private sector, which will have a significant environmental impact.

Four distinct sections make up the branch: Industrial Approvals, Environmental Assessment, Municipal and Private Approvals, and Landuse Co-ordination and Special Studies. These four sections have the responsibility to carry out many of the tasks previously done by the Industrial Waste Branch, Air Management Branch, Strategic Planning Branch, Sanitary Engineering Branch and the Waste Management Branch.

Municipal & Private Approvals Section:

The Municipal and Private Approvals Section is responsible for the processing of all applications made under Sections 41 and 42, O.W.R. Act and Part V of The Environmental Protection Act for non-industrial water, sewage and solid waste programs in the province.

The number of applications received under Sections 41 and 42, O.W.R. Act during the 1974-75 year period included 960 applications for approval of water works extensions; 1,474 applications for sewage works extensions, including 29 air applications for a total estimated value of $387.6 million. This involved some 34 hearings before the Environmental Hearing Board.

In addition, under Part V, Environmental Protection Act, a total of 2,790 certificates of approval for waste management programs were issued which consisted of 594 new applications and the balance involved in the re-issuing of existing certificates as required. At the same time 21 hearings were arranged with the Environmental Hearing Board and eight appeals before the Environmental Appeal Board.

The section also processed 215 claims for grants under The Pollution Abatement Incentive Act; 135 claims under M.O.E. grant programs and 153 claims for eligibility of C.M.H.C. financing.

Industrial Approvals Section:

The section is charged with the responsibility of reviewing applications submitted by industries in Ontario for the approval of all treatment and control facilities designed to prevent the pollution of air, water and land. The approval functions which had been carried out by three separate government groups until April 1, 1974, were thus brought together under one environmental industrial approval agency. The change was welcomed by industry since industrial environmental control projects could now be discussed in total without being broken down into separate categories dealing with air, water, and land disposal problems. Negotiations were further simplified since the approval of each project could now be obtained from one agency. Bringing the three disciplines together represented a rational approach to the environmental control program since it provided continuity and ensured that the solution of a pollution problem in one area (air) did not produce another pollution problem in another area (water).

Regional Activity:

During the 1974 fiscal year, the Industrial Approvals Section reviewed a large number of applications submitted by industries in the Sarnia area where there has been a significant industrial expansion. A summary of all the applications for approvals processed during the 1973-74 fiscal year has been tabulated in Table I. During the fiscal year the section reviewed all applications for grants submitted by industries under The Pollution Abatement Incentive Act, 1970. Under the terms of this Act, industries are allowed a grant equivalent to the provincial sales tax paid on equipment installed for the purpose of abating pollution to air, water and land. A summary of the applications received and grants paid out, is summarized in Table II.(P.20)

Public Participation:

According to the terms of The O.W.R. Act and The Environmental Protection Act, before a certificate of approval can be issued, it is necessary, in some instances, to hold public hearings on applications. Hence some industries desiring approval of extensive land disposal sites and/or wastewater treatments systems which cross municipal boundaries or could have significant environmental effect, may be required to make public presentations to support their applications before the Environmental Hearing Board. During the 1974 fiscal year, five such public hearings were held before the board. Most of these hearings were held in Northern Ontario and involved mining industries which proposed the establishment of tailings impoundment systems which used land in more than one municipality. A summary of all the hearings held during the 1974 fiscal year is tabulated in Table III.

TABLE I

INDUSTRIAL APPROVALS SECTION

Applications for Approval Processed

	Received	Approved	Cancelled	Denied
Air	1072	1016	126	1
Water	123	76	4	-
Waste	29	25	-	1
Total	1224	1117	130	2

TABLE II

Applications Processed Under

The Pollution Abatement Incentive Act, 1970

	Received	Processed	Grants
Air	226	178	$1,009,610
Water	150	141	828,650
Waste	3	3	4,880
Total	379	322	$1,843,140

TABLE III

Public Hearings

Company	Location	Project	Date
Cambrian Disposals Limited	Sarnia Township	Deep Well Brine Disposal	April 26, 1974
Sturgeon Lake Mines Limited	Sioux Lookout	Tailings Impoundment System	May 2, 1974
Great Lakes Nickel Ltd.	Neebing Township	Tailings Impoundment Basin	May 16, 1974
Adams Mine	Kirkland Lake	Tailings Impoundment System	June 17, 1974
Falconbridge Nickel Mines Ltd.	Sudbury	Tailings Impoundment System	August 22, 1974

Environmental Assessment Section:

The Environmental Assessment Section is the administrative unit with the principal responsibility for the development, implementation and co-ordination of the emerging Environmental Assessment Program.

The goals of the program are:

> To identify and evaluate all potentially significant environmental effects of major proposed undertakings at a stage when alternative solutions, including remedial measures and the alternative of not proceeding, are available to decision-makers, and
>
> To ensure that the proponent of a major undertaking, and governments and agencies required to approve the undertaking, give due consideration to the means of avoiding or mitigating any adverse environmental effects prior to granting any approval to proceed with an undertaking.

In essence, the Environmental Assessment Program is seeking to inject consideration of natural and human environmental factors into the decision-making processes of proponent and review agencies.

On March 14, 1975, The Environmental Assessment Act received First Reading in the Legislature.

On a continuing basis, section staff are providing technical and policy input to senior management related to the development and implementation of legislation, regulations, and administrative procedures to initiate a formal, comprehensive Environmental Assessment Program.

In the past year this has required the section to:

- commence implementation of the environmental assessment process for major projects of the Ontario Government and its agencies;
- establish a review process and administrative procedures;
- prepare a forecast of resource requirements for the phased extension of the program, and to;
- establish public participation process for planning Ministry projects.

At present environmental assessments are being prepared and submitted to the Ministry on a voluntary basis. On many of these projects, section staff are responsible for co-ordinating the Ministry's review. When environmental assessment legislation is implemented, co-ordination of the viewpoints of other ministries will also be required. Work load will be governed by the volume of projects designated under the legislation, but is likely to be significantly greater.

Section staff provide advice and offer informal consultation on environmental planning matters to other ministries and agencies and to project proponents in the private sector. The activity also involves the representation of the Ministry on various task forces and committees, as directed by senior management. Groups to which staff of the Environmental Assessment Section are assigned are usually concerned with broad or complex environmental management issues or with informal prior assessment of major government planning or project initiatives.

Section staff perform special assignments on complex or unusual environmental issues as assigned by the Ministry executive. Often these tasks involve the analysis and integration of the policy concerns identified by other head office units or by the regions. The function also involves the handling of a large amount of ministerial correspondence.

Land Use Planning Section:

The Land Use Co-ordination and Special Studies Section has two main objectives:

> To ensure that environmental safeguards are incorporated into land use policies and programs of all levels of government and the private sector.

To assess environmental management policy alternatives on the basis of constraints imposed by Ontario's socio-economic systems, taking into account competing government objectives.

To achieve these objectives, the section performs three main functions: advisory, co-ordination and research. It advises other government agencies at all levels and the private sector on environmental matters related to land use planning involving, where necessary, other branches or sections of the Ministry. It co-ordinates the Ministry's response to referrals on official plans, Amendments thereto and general land use issues. It initiates or carries out studies on environmental matters affecting land use as well as economic matters as they are related to the environment or control of pollution.

The section participates, as members, observers or technical advisors, in committees and task forces that deal with planning and land use matters, including: Agricultural Code of Practice Committee, Capital Construction, Program Management by Results Task Force, Central Ontario Lakeshore Urban Complex Steering Committee, Credit Valley Conservation Authority Committee, Haldimand/Norfolk Interministerial Co-ordinating Committee, Housing-Interministerial Co-ordinating Committee, Provincial-Municipal Liaison Committee, Inter-Departmental Committee on Regional Government-County Restructuring Program, Simcoe/Georgian Task Force, Visual Environment Committee, Regional Municipality of Waterloo Planning Liaison Committee, Waterfront Development Plan Committee, Ontario Business Incentives Program - Location Committee, committees established under the Canada-Ontario Agreement on The Great Lakes, Various River Basin Study Committees, Niagara Basic Power Users Committees, Co-ordinating Committee on Economic Development - North Pickering Project, Census Data Users Committee, Statistical Data Users Committee.

In its role as the Ministry's co-ordinator on land use planning, the section co-ordinated the reviews of 346 separate referrals during the year, 44 official plans, 249 amendments to official plans and 53 other items such as Minister's zoning orders, bylaws, subdivisions, etc.

The section monitors the regional comments on Plans of Subdivision. The result of the monitoring indicates that the Ministry recommends against approval for only about 17 per cent of the applications, primarily for reasons relating to the availability and adequacy of sewage treatment and water supply.

A Land Use Planning handbook was prepared and issued to assist staff in the review of land use proposals.

The section carried out studies and prepared papers and reports on a variety of subjects, including: Mobile Home Parks; Demographic Characteristics, Urbanization, Land Uses and Population Projections in the Upper Great Lakes Basin for the International Joint Commission; Alternative Policies for Pollution Abatement, The Ontario Pulp and Paper Industry - an economic study; Statistical Sources Relevant to Social and Economic Aspects of Environmental Problems in Ontario and Canada; Waste Paper Markets in Ontario; An Environmental Forecasting Model.

Early in the year, the section initiated and assisted in the planning of a Land Use Planning Seminar at the University of Waterloo for Regional Operations staff.

utility and laboratory services division

The division combines a key responsibility for the development of water, sewage and waste treatment systems in Ontario with specialized scientific, engineering and technical expertise offering a range of support services to Ministry programs.

A significant expansion of Ministry laboratory facilities permitted the completion of more than one million tests, a 30 per cent increase in analytical activity over the 1973-74 fiscal year. The expansion included the acquisition and operation of some of North America's most sophisticated and accurate scientific equipment, permitting increased exploration of low-level trace contamination.

An accelerated capital works program was mounted to meet pressing demands for water and sewage treatment services in Ontario. The $127 million capital expenditure on new works in 1974-75 was a record high for the Ministry construction program.

Increasing concern over the rapid growth of solid waste production and the limitations of present waste disposal methods led to a number of measures in waste control and programs in waste recovery. This culminated in a new program of waste management and resource recovery and the establishment of a Resource Recovery Branch in the division.

RESOURCE RECOVERY BRANCH

During the fiscal year 1974-75, the Ontario Ministry of the Environment, in a series of project and program announcements, unveiled a new and comprehensive approach to solid waste management.

The Watts from Waste Program, in co-operation with Metropolitan Toronto and Ontario Hydro, will recover energy by using municipal refuse as a fuel additive in the coal-fired Lakeview Generating Station. A garbage-processing plant and transfer station is being developed for the project in Etobicoke to process municipal refuse, recovering ferrous metal and combustible fuel.

The demonstration project was followed by the announcement of a new Experimental Plant for Resource Recovery, to serve as a research laboratory in developing new uses and markets for recovered material and energy reclaimed from waste, and a provincial program of financial assistance in the development of reclamation facilities across Ontario. The experimental plant in Downsview is scheduled for completion late in 1976.

The Waste Management staff in the Pollution Control Branch of the Ministry completed the preliminary planning for the comprehensive provincial program early in the fiscal year, covering all aspects of solid waste management, but emphasizing the twin goals of waste reduction and resource conservation.

The program incorporated the major projects already initiated or planned, including Watts from Waste and the Experimental Plant for Resource Recovery together with new financial policies to encourage the development of waste processing plants.

A working group, including Ministry staff experienced in solid waste management, research and construction management, was set up to plan and implement the development of the program to obtain the co-operation of municipalities and industries which might be involved and to carry out the necessary engineering and planning studies.

Effective April 1, 1975, the Resource Recovery Branch

was established to develop and implement the new program for the conservation and recovery of resources with these objectives:

To recover to the greatest degree practicable the energy and material resources in solid waste,

To foster the development of markets for the full utilization of energy and materials recovered,

To provide guidance and assistance in the economic development of integrated waste management systems,

To reduce to a minimum the use of land for solid waste disposal.

Within the new branch, there are three sections:

Program Development Section:

The section is responsible for continuing the Ministry's program of waste management system planning for regions and counties in the province, integrating these area studies into a comprehensive provincial plan for waste management.

Technology and Market Development Section:

The section is responsible for the development and evaluation of waste processing technology and equipment, fostering the development of new industrial processes for wider use of recovered resources, and developing and evaluating technology for collection, transfer and transportation of waste and recovered materials. The section is also responsible for encouraging markets for the economic development of resource recovery from waste.

Project Construction Section:

The section is responsible for co-ordinating the establishment of waste management systems for resource recovery, the construction of provincially-owned facilities and the management of these facilities.

PROJECT CO-ORDINATION BRANCH

The basic role of the Project Co-ordination Branch is to manage, co-ordinate, review and be responsible for all Ministry capital sewage works and water works projects from inception to the completion of construction.

The volume of activity of the Capital Construction Program during the 1974-75 fiscal year is indicated by the following statistics:

Sewage works projects	$ 95,000,000
Water works projects	32,000,000
Total expenditure:	$127,000,000

Provincial Projects

Applications received for new projects	22
Final agreements executed	39

Municipal Projects

Applications received for new projects	13 -
Preliminary agreements executed	8
Final agreements executed	12

Construction

Contracts under construction during the year	202
Average contracts under construction each month	125
Contracts tendered	90
Total value of contracts tendered	$84,190,000
New contracts started	102
Contracts completed	93

The upward trend of construction activity on Ministry projects continued in the 1974-75 fiscal year and the

$127 million capital expenditure was a record high for the program. It is expected that this trend will continue through fiscal year 1975-76 with capital expenditure exceeding $140 million.

Project Co-ordination Branch was formed as a result of the reorganization of the Ministry which became effective April 1, 1974, and combined the responsibilities of the former Project Development Branch with most of the responsibilities of the former Project Construction Branch. In addition, it included the Groundwater Development Section.

During 1974-75, the branch included the following sections:

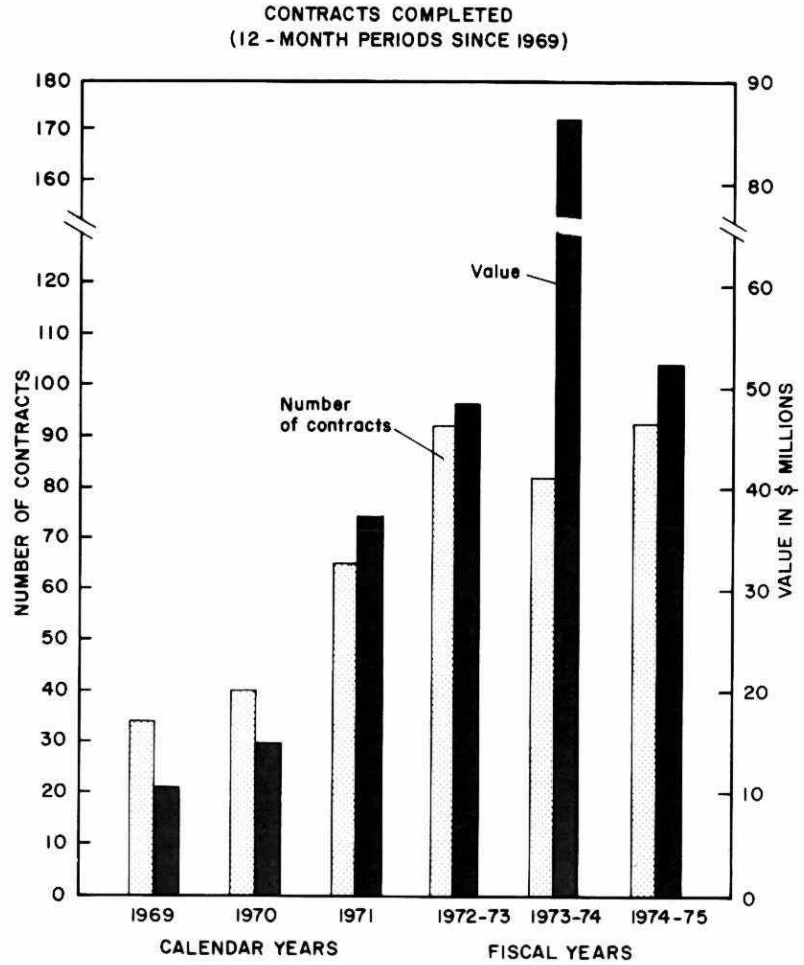
Project Co-ordination Section:

This part of the branch is supervised by the chief engineer, project co-ordinaton, who is also assistant director, and comprises six project managers' sections and the municipal project officer's unit. It is responsible for the development and co-ordination of all the Ministry's provincial type and municipal type sewage works and water works projects except for the development phases of large area schemes such as the York/Durham and Haldimand/Norfolk projects which are the responsibility of the manager, special project development.

The project managers' areas of jurisdiction correspond in general to the six regions administered by the Ministry's regional offices except that, as the project work load varies appreciably between such regions, Project Co-ordination Branch may adjust the project managers' areas to obtain a better balance of project work load.

The project managers maintain close liaison with the appropriate regional offices and with Technical Services Branch in the development of Ministry projects.

A "Management by Results" (MBR) system was introduced into the Capital Construction Program during 1974-75. By the system, a proposed new project is graded according to certain criteria to ascertain the need for the project and a MBR priority rating is established. As capital funds and staff available are not sufficient to permit all requests for projects to be accepted, the system enables the available resources to be applied to servicing municipalities having the greatest need.



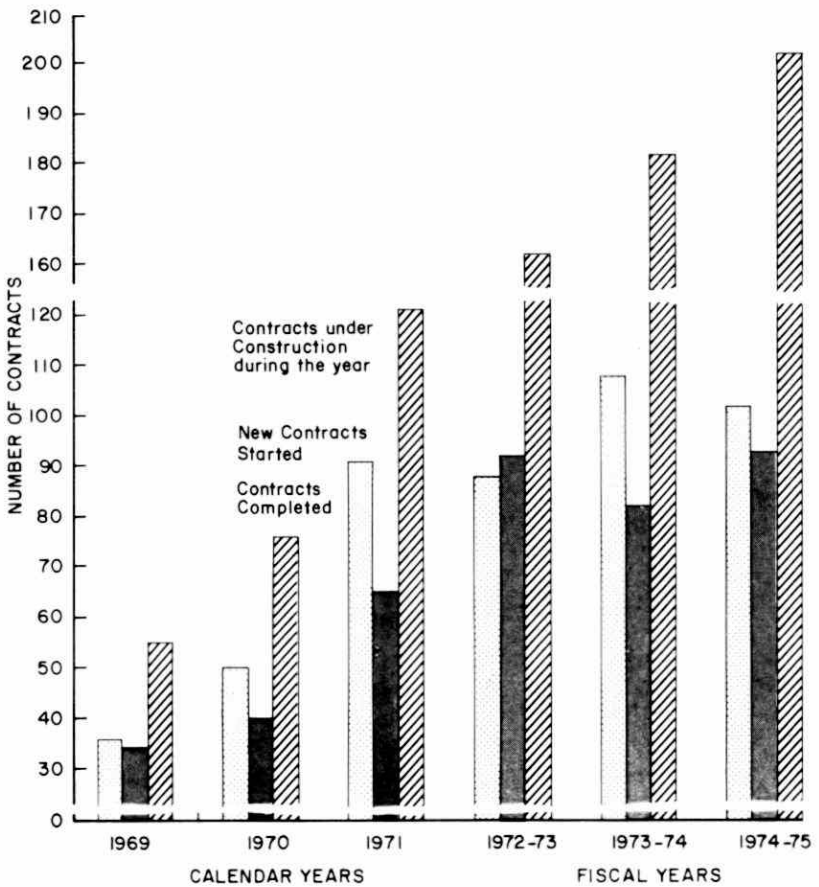
Groundwater Development Section:

The section carries out municipal groundwater surveys and plans and supervises test drilling for water wells

and the construction of such wells for Ministry projects In addition, it provides hydrogeological expertise in conducting special investigations of groundwater supply problems, leakage problems from sewage lagoons, interference with private wells, etc., in relation to Ministry projects.

During 1974-75, the section supervised 13 test drilling projects and eight well construction contracts with a total contract value of $632,000. In addition, it undertook 11 groundwater surveys and 11 special investigations involving well testing and analysis of well and aquifer performance for Ministry projects.

ANNUAL VOLUME OF ACTIVITY (1969-75)



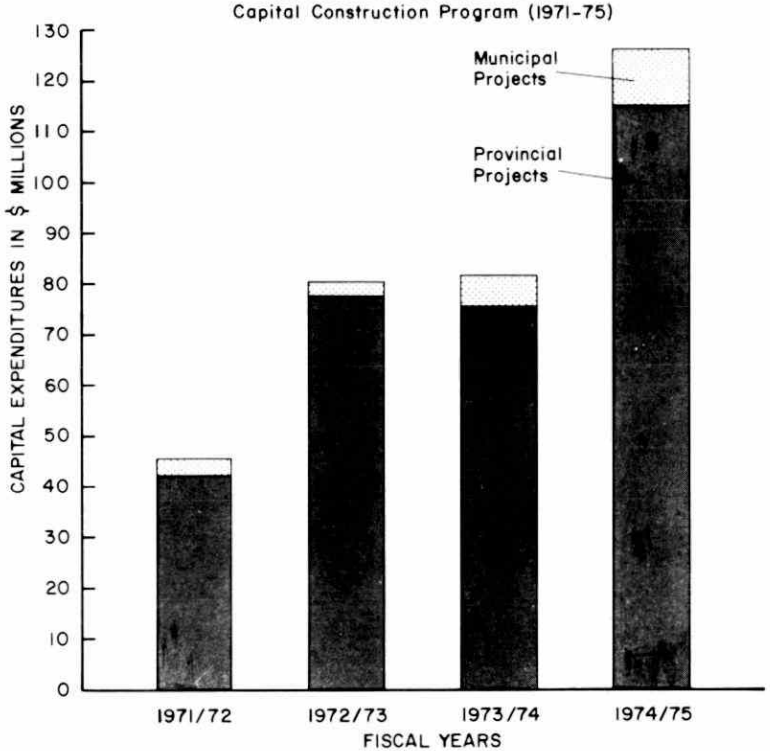
Special Activities Section:

The section provides special inspection of construction, investigation of unusual construction problems, administration of the Ministry's prequalification system for concrete sewer pipe plants, representation on committees involving standardization and co-ordination and numerous administrative and support activities.

Property Section:

The section handles all matters relating to interests

ANNUAL TOTAL EXPENDITURES
Capital Construction Program (1971-75)



in property for Ministry projects such as obtaining options on property, arranging for the acquisition of necessary easements and purchase of property and administering matters relating to taxation and leases of properties. It ensures that property acquisitions are scheduled to co-ordinate with the requirements of the project managers' sections with respect to environmental hearings and construction of the works.

During the 1974-75 fiscal year, Property Section arranged property acquisitions for 112 Ministry projects involving 204 freehold purchases and 709 easements for a total expenditure, including related legal and survey costs, of $3.35 million.

TECHNICAL SERVICES BRANCH

The branch provides the Ministry with a range of technical and operational support services.

Budget Control Section:

The section provided service to the Ministry's expanding capital works program with tender advertisements, tender openings, contract and engineering payments and budget control to provide greater accountability in the management of funds.

Training Certification and Safety Section:

The section organized 38 courses, twice the number offered in 1973-74, offered to 1,537 trainees, an enrolment increase of 300 per cent over previous years. These trainees included 830 Ministry staff, 470 municipal employees, 153 employees from industry, 47 from other government ministries and federal agencies and 37 from other provinces.

The section's activity included training of provincial officers in the identification of visible emissions, the development of guidelines for provincial certification of water and wastewater treatment operators, and planning a program for the certification of municipal noise control officers. In addition, safety training officers made 300 visits and conducted eight on-site St. John Ambulance first aid courses for 100 treatment plant staff.

Design and Equipment Section:

The section evaluates and approves all engineering design work submitted by consultants on Ministry-financed sewage and waterworks projects, reviews process and hydraulic designs and equipment selection for these projects. Staff also prepares design guidelines and standard equipment specifications for Ministry projects, assesses the performance of existing treatment systems and publishes an annual report for each treatment plant outlining performance and operating costs.

The Cartography and Drafting Section:

A 60 per cent increase in demand for services was the result of the section's expansion to serve all Ministry programs. In addition to supplying maps, drawings, figures, diagrams, graphs and other art work, the section was responsible for producing 12,951 reproduction items and 10,350 copies of various maps.

Field Services Section:

A team of technical specialists skilled in the maintenance and operation of electrical diesel and heavy machinery and related instrumentation and controls, provided assistance in 705 operational situations. Their services also included the evaluation of new equipment, some field engineering and modification and final inspection of complex capital works.

Instrumentation and Marine Section:

The section maintains, calibrates and evaluates ambient air monitoring instruments used by the Ministry throughout the province and schedules, operates and maintains water survey vessels of the larger type operating on the Great Lakes for the Ministry.

The Instrumentation Group, working in close co-operation with the Air Resources Branch and the Regional Operations Division, has been able to maintain, repair and calibrate air monitoring units on a regular basis.

The Marine Group operating five survey vessels ranging in size from 20 feet to 56 feet, requiring three licensed masters, put in over 1,600 hours operating time during the season May to December, 1974. Water Resources survey crews were able to sample over 5,100 survey stations.

The year was highlighted by the acquisition of a twin screwed, specially designed, 56-foot survey vessel launched in March, 1975. Christened the "GUARDIAN NO.I," through a Ministry-wide contest, in May, 1975,

she replaced a chartered vessel for the 1975 survey season.

LABORATORY SERVICES BRANCH

The branch provides the analytical data and scientific expertise to support the Ministry's environmental assessment, abatement and enhancement programs. With the increasing number of newly discovered pollutants -- many of which are toxic to aquatic life, damage vegetation, or are potentially detrimental to human health -- the laboratory also provides a much needed early warning system to alert the public concerning the presence of these harmful substances in the environment.

Various individual laboratories are grouped into five main sections: Water Quality, Air Quality, Organic Trace Contaminants, Inorganic Trace Contaminants and Microbiology.

Programs:

The Ministry's environmental assessment and control programs necessitate continuous monitoring of air and water quality throughout the province. The bulk of the laboratory work load stems from these on-going activities. The Air Quality laboratory, for example, completed analyses and a data summary of heavy metals in air particulate matter collected during a three-year survey at twenty-five representative sites. The atmospheres of 11 urban communities including those in industrialized areas of the Niagara Peninsula, were analyzed for the presence of potential carcinogens. A diagnostic service was also provided to identify the composition of complaint samples submitted by the public or Ministry inspectors. Staff provided expert evidence to substantiate their findings when these matters were referred to the courts.

The Water Quality and Microbiology laboratories provided analytical support for lake and stream surveys, drinking water quality assessment, sewage and water treatment plant control, industrial abatement surveillance, and Upper and Lower Great Lakes water quality monitoring activities. For some of these activities, mobile laboratories were used in order to obtain more accurate data. The hundreds of thousands of analytical tests carried out by these laboratories provided the basic information for assessing the overall quality of provincial waters and gauging the effectiveness of preventive measures and treatment procedures initiated by the Ministry.

The Inorganic Trace Contaminants laboratory concentrated its efforts in analyzing water, sewage, sediment, fish and industrial waste samples for a wide range of metals. Of particular interest was the expanded mercury monitoring program, the heavy metals investigation arising from the Sudbury Environmental Study, and the survey of concentration of metals in fish from the Toronto Harbor.

The Organic Trace Contaminants laboratory carried out tests for pesticides, polynuclear hydrocarbons, polychlorinated biphenyls and derivatives of these compounds. A highlight of the laboratory's activities was the speedy development of new test procedures for measuring the concentration of chloroform and other haloform compounds in drinking water supplies.

Research & Development:

Over the past few years medical research has revealed that trace amounts of substances hitherto considered harmless can have a detrimental effect on human health. These discoveries have created a demand upon the laboratory to develop a wider range of test procedures with improved precision, accuracy and sensitivity, and consequently the laboratory scientists devoted a considerable amount of time to method development work in order to achieve these improvements.

Since it is vital that the analytical data being generated is as accurate as possible, a formalized Quality Control Program has been integrated into the routine

analytical procedures. A quality assurance officer works full time at ensuring that the analytical results meet the prescribed standards.

During the year the results of a number of investigations concerning environmental phenomena were published by staff in scientific journals or presented at conferences. By devoting a fixed segment of time to analytical method development work, quality control requirements and research projects related to environmental problems, the laboratory has been able to maintain the analytical capability to monitor newly emerging pollutants and smaller concentrations of the more commonplace pollutants.

Technology:

A new laboratory wing was constructed and occupied during the year. The new facilities feature a series of diagnostic instrumental systems which provide the capability of isolating, identifying and quantifying pollutants of concern to the Ministry and the public at large. The gas chromatograph-mass spectrometer-computer system is capable of rapidly identifying organic compounds at trace levels. Whereas formerly weeks or months would have been required for this identification work, the new equipment can provide the information within hours. A spectrograph has also been installed which is capable of simultaneously detecting and measuring the concentration of virtually all metals present in environmental samples.

A new capability has been provided for analyzing asbestos and viruses. The acquisition of transmission and scanning electron microscopes has provided this much needed analytical depth to the Ministry. These instruments, together with the existing X-ray equipment and scintillation counter, are key tools employed by the physical laboratory to determine by non-destructive techniques particulate materials and mineral fibres.

The Laboratory Services Branch carried out close to 1.1 million tests during the year, 30 per cent more than the previous year, with virtually no additional staff.

In large measure these productivity achievements were brought about by a combination of automating manual procedures wherever possible, by acquiring new equipment, and the introduction of efficiency measures by staff.

As a result of these operational improvements, together with the completion of the new laboratory wing, the Ministry's analytical facilities are now among the best available in Canada.

regional operations division

The fiscal year 1974-75 marked the beginning of a new era in the Ministry as, under reorganization, the regional operations division was formed and offices were established throughout the province.

The division is responsible for policy implementation and the delivery of Ministry service to the public. This includes environmental protection services such as abatement programs and complaint investigation, regional environmental assessment activities and the operation of sewage and water projects.

The division is divided into six regions: Northwestern (with headquarters in Thunder Bay), Northeastern (Sudbury), Southwestern (London), West Central (Hamilton), Central (Toronto), and Southeastern (Kingston). These central offices are supplemented by district offices across the province.

In each region, programs are carried out by four sections: Industrial Abatement, Municipal and Private Abatement, Technical Support (environmental monitoring and planning), and Utilities Operation.

As is usual with the introduction of any new program, the first year presented some challenges. The combining of three work areas -- air, land and water -- into a single area of responsibility meant making all staff familiar with the full scope of the new work load. In addition, a certain amount of relocation and addition of new personnel were required. However, by the end of the year the necessary adjustments were well underway.

The training of personnel will continue to have a high priority if a comprehensive service is to be provided to the public and industrial sectors. Field personnel must have confidence in their ability to deal properly with questions affecting all aspects of environmental protection.

Industrial Abatement Section:

The Industrial Abatement Section in each region is responsible for the protection of the environment from emissions from industrial processes, including commercial, institutional and agricultural operations, construction and demolition activities, and from certain activities of individuals.

The section makes preliminary investigations into a wide range of environmental complaints, initiates abatement action (control orders or prosecutions) as required and refers problems outside its jurisdiction to the proper authority. It also provides information to industry and to the public on current technology for controlling pollution sources, for process changes when expansion is anticipated and for the disposal of hazardous wastes.

Abatement programs are normally negotiated on a co-operative basis. Where court action is necessary, the gathering of evidence can mean weeks of painstaking work by specially trained field personnel and the use of sophisticated monitoring devices and physical and chemical analysis.

In the six regions, in addition to complaint investigation and survey and abatement activities involving minor industrial sources, Industrial Abatement staff spent a considerable amount of time in investigating, surveying and abating more than 125 major industrial sources.

During the year, the sections also dealt with 30 significant new sources, ranging from auto plants, through mining and pulp and paper operations to a new Ontario Hydro project.

In connection with Ministry control and abatement orders and programs, industrial sources in the province

spent or committed $142 million in capital funds for pollution control.

A significant factor affecting the progress in meeting abatement schedules has been the delays in delivery of major pollution control equipment. Taking this into account, most of Ontario's major industries are making satisfactory progress in pollution control.

In addition to their other activities, industrial abatement sections provided a 24-hour first-line engineering assessment and co-ordinating function under the Ontario Contingency Plan for 719 accidental spills of oil or other substances hazardous to the environment.

As Table 1 shows, the number of complaints received and investigated in 1974-75 totaled 7,642, most of them concerned with odour, smoke or emission of particulate or dust. Seven hundred and nineteen spills were investigated and dealt with. Farm visits under the Certificate of Compliance Program totalled 498.

Table I

MINISTRY OF THE ENVIRONMENT

SUMMARY OF INDUSTRIAL ABATEMENT ACTIVITIES

For The Fiscal Year 1974-75

	Northwest	Northeast	Southwest	Southeast	Central	W. Central	TOTAL
Number of Complaints	407	649	1142	476	3649	1319	7642
Control & Amending Control Orders	1	2	5	0	3	16	27
Program Approvals	2	0	10	0	3	3	18
Minister's Order - API	0	8	0	0	0	8	16
Farm Visits - Certificate of Compliance Program	1	0	200	103	56	138	498
Spills	51	92	133	172	210	61	719
Court Cases	2	4	5	5	17	7	40
COMPLAINTS							
Odour	92	360	474	127	1472	423	2948
Smoke	43	66	202	79	1216	311	1917
Particulate/Dust	167	95	248	65	729	289	1593
Agricultural	3	0	98	12	46	91	250
Noise	17	26	69	60	58	26	256
Water	82	102	47	47	114	39	431
Other	3	0	4	86	14	140	247
CAPITAL COSTS FOR INDUSTRIAL ABATEMENT							
Millions of Dollars	9	41	23	3	42	24	142

Municipal and Private Abatement Section:

The section is responsible for the field program to protect the environment from the activities of municipalities and private citizens. Specific responsibilities include inspection of water works, waste disposal sites, marinas, boats, ice shelters, water wells, derelict vehicle sites, septic tank systems, holding tanks and sewage treatment plants and pesticide application, storage and sales to ensure compliance with The Environmental Protection, The Ontario Water Resources and The Pesticides Acts.

The Water Works Inspection Program is aimed at ensuring a safe and good quality water supply for the citizens of Ontario. In its first year of operation (1974-75), 1,172 inspections were carried out. A further aspect of the Water Supply Protection Program is the inspection of new wells. During the year, field staff visited 7,256 installations.

The control of sewage inputs to the water environment involves several programs including the inspection, promotion and approval of communal sewage treatment plants, approval of septic tank systems, inspection of boats and marinas regarding disposal of sewage from holding tanks, checking ice shelters on lakes in winter and control of pesticide applications to water.

During the year, 1,101 inspections were made at the 651 sewage works in Ontario, 10,359 surveys of septic tank facilities and 2,438 checks of pleasure craft and marinas. To determine the effectiveness of pollution control measures and locate systems not listed, staff undertook 204 municipal pollution surveys. In addition, an intensive Cottage Pollution Program covered 6,085 cottages, the purpose being to detect malfunctioning systems.

The Waste Management Program entailed inspections of 2,865 sites and systems. It includes approval, inspection and promotion of sanitary landfill sites, incinerators, processed organic waste disposal sites and systems, and derelict motor vehicle sites. The major thrust of the program is to bring about the development and approval of new waste facilities and then close down inadequate sites. In the processed organic waste, stringent guidelines have been established. A new program of assessing the applications of sewage sludges to agricultural land was started during the year.

Complaints received from the public are valuable in detecting violations. During the year, 3,553 complaints were received and investigated.

In the planning field, staff worked with planning authorities regarding water and sewage facilities on 1,550 proposed subdivisions, 14,172 lot severances, and official plans and their amendments. This is important as it ensures required works are installed as the development is being built rather than after pollution or water problems are encountered.

Technical Support Section:

The section of the Regional Operations Division was established to provide monitoring, analyses, data evaluation, logistics support, environmental assessment, approvals and planning functions for the six regions. Four subsections make up the working units: Approvals and Planning; Air Quality Assessment; Water Resources Assessment; and Laboratory.

Air Quality Assessment:

The subsection is responsible for the air quality surveillance network and assessment of ambient air quality in the region. Current networks consist of 222 continuous analyzers, 165 hi-vol stations, 308 dustfall stations and 381 sulphation and fluoridation stations, including 11 Air Pollution Index (API) stations. In addition, all vegetation and soils evaluations are carried out by the two northern regions, while all phytotoxicological investigation in the southern regions are carried out by the Air Resources Branch.

Among the major activities carried out by regional staff are snow sampling programs, advice to outside agencies operating their own monitoring networks, co-operation with U.S. authorities on trans-boundary problems, presentation of technical papers at conferences and special studies on asbestos, sulphur dioxide, lead, mercury and other heavy metals.

Water Resources Assessment:

The regions operated and maintained a network of water quality and quantity stations totalling 170 stream-flow stations, 684 water quality stations and 319 observation wells. Some major studies included:

Thames River Basin Study
Sudbury Environmental Study
Recreational Lakes Studies
Nanticoke Environmental Study
Lake St. Francis Survey
Humber River Survey
Rouge River Study

In addition, staff carried out waste assimilation reviews, landfill evaluations, investigations into water quantity interference problems and groundwater complaints. Fish kill investigations and evaluations of deep-well disposal of industrial wastes were also undertaken by regional staff.

The withdrawal of water from streams, lakes, ponds and wells is regulated by a permit program to ensure that withdrawals do not harm the environment or cause hardship to neighboring water users.

Approvals and Planning:

The Regional Approvals and Planning staff deals with less complicated approvals and head office is responsible for more complex approvals including multi-source installations.

During the past year, regional staff issued 578 Certificates of Approval (Air), evaluated 96 applications for head office and issued 480 Water Taking Permits. Studies were made of 295 official plans (and amendments), 1,297 subdivisions, and 179 water and sewage works.

Laboratory Services:

All laboratories experienced substantial increases in work load in both microbiology and chemistry.

Laboratory	Microbiology		Chemistry	
	Samples	Tests	Samples	Tests
Kingston	5,020	15,787	4,057	16,893
London	11,608	39,382	13,961	118,048
Thunder Bay	7,620	22,899	7,042	51,806

Utility Operations Section

The section is charged with the supervision, regulation and operation of water and sewage works constructed by the Ministry under agreement with the municipalities served. The older projects were built under provincial-municipal agreements and the capital debt charges and operating costs are recovered quarterly from the municipalities concerned. These projects will revert to the municipalities at the end of the respective loan periods. The newer projects are provincially-owned and water or sewage disposal service is provided to municipalities on a rate per thousand gallons basis. The rates are calculated to recover the capital debt charges and cost of operation and are based on twenty year flow forecasts. The expenditures and revenues at each project are kept completely separate and there is no transfer of charges or revenues between projects. As of March 31, 1975, there were 219 such facilities (75 water and 144 sewage) operating in 218 municipalities and 7 industries requiring a total of 445 plant operators on staff. The total capital cost for these

projects is approximately $600,000,000. Figure 1 shows the growth in the number of projects operated by the Ministry for municipalities.

The Utility Operations staff in each region is familiar with plant and systems engineering, building and equipment maintenance, water and sewage treatment process control, budgeting and cost control, and maintain a close liaison with consulting engineers, equipment suppliers and Ministry personnel in associated disciplines. The group is involved in the initial setting of rates for provincial projects and in the alteration of these rates when circumstances dictate. Close co-operation with participating municipalities is achieved through Local Advisory Committees. The group monitors plant and equipment performance closely and initiates expansions.

Fig.1 PROJECTS IN OPERATION

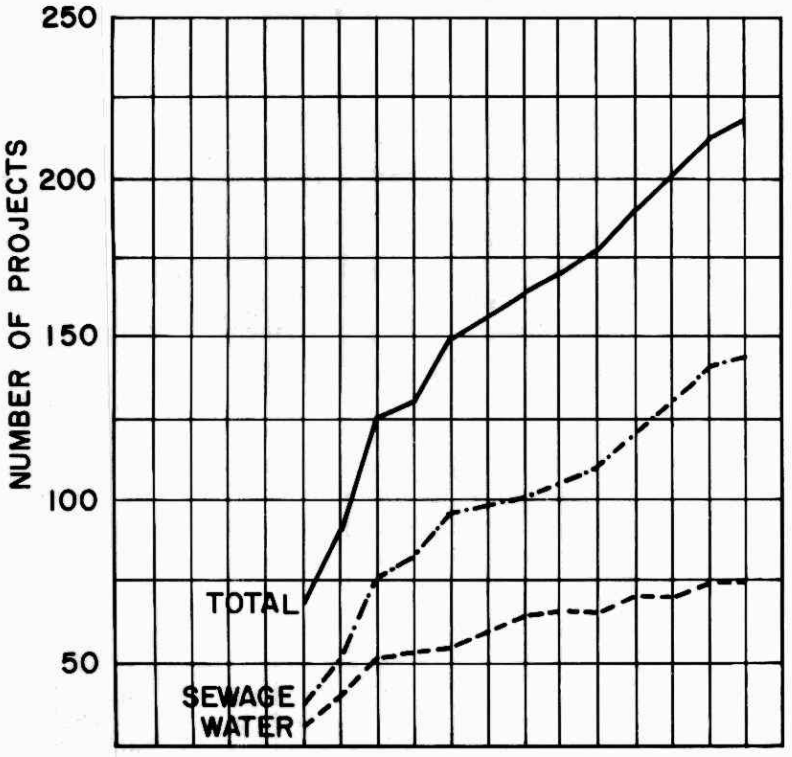
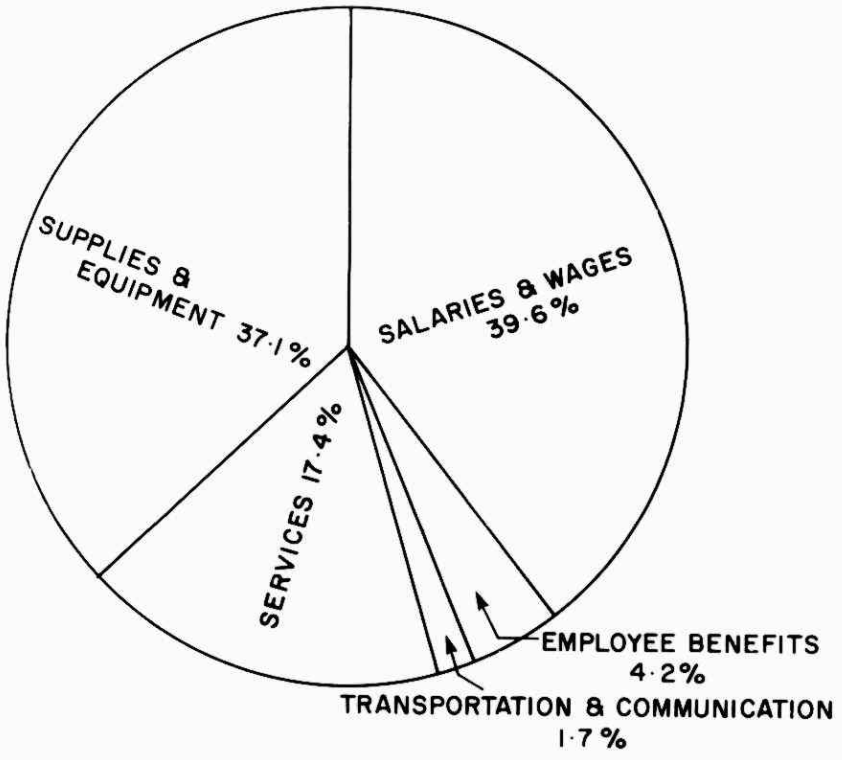


Fig.2 DISTRIBUTION OF OPERATING COSTS



finance and administration division

The Finance and Administration Division is the Ministry's central agency with extensive responsibilities in three general areas: service, control and co-ordination.

Services provided by the division to the Ministry, to staff and to the public include public information, legal advice and action, employee counselling, payroll preparation, systems development and other administrative activities.

The division's control functions include proper classification of jobs in accordance with Civil Service Commission's standards, allocation of accommodation in accordance with Ministry of Government Services' standards and limiting expenditures to the levels set in the annual estimates approved by the Legislature.

Co-ordination activities involve liaison with central agencies on the multi-year plan, the procurement of accommodation, staff recruitment and other functions.

The year 1974-75 was one of consolidation following the reorganization of the Ministry into a regional structure to improve its service to the people of Ontario. This, in itself, required considerable attention to the relocation of staff and accommodation, staff training and retraining and some innovations in public information.

Improved financial controls and strict attention to purchasing practices during the year reflected increased government concern about inflation and increased costs.

A major analysis and assessment of the Ministry's major capital spending was completed and new planning and control systems were established for capital programs.

In general, the division concentrated on providing more efficient and effective support to the Ministry's programs and activities consistent with the new demands stemming from regionalization.

ADMINISTRATIVE SERVICES BRANCH

The Administrative Services Branch underwent a period of consolidation intended to improve productivity. This enabled the branch to increase volume and expand its scope of services despite a reduction of staff. Continuing inflation coupled with more stringent controls by Central Agencies resulted in substantial work load increases in Purchasing. Although the number of purchase orders decreased to 14,000, the dollar value of $14 million was 12 per cent over the previous year.

Laboratory-Operating Services Section:

The upgraded handling facilities of the new laboratory building enabled the section to deal effectively with an 18 per cent increase of samples received, from 151,630 the previous year to a total of 179,316 in 1974. The increased volume is significant since the higher number of samples was dealt with with no increase in resources.

Assets Control Section:

The Assets Control Information System has been in operation for a full year. All of the year's major acquisitions, about 7,000 items, have been recorded and indexed. Plans are under way to carry out physical inventories of various Ministry locations and update the system during fiscal 1975-76.

Systems and EDP Section:

The System's function was active in a number of areas in the Ministry. Branches in conjunction with system development resources defined their information requirements, conducted feasibility studies, designed, programed, implemented and operated systems. For example:

The Air Resources Branch provided data for the Lead Task Force on airborne lead near Toronto area

lead smelters, expanded the Urban and Regional Atmospheric Simulation Model to include the Niagara Peninsula, and established the special pollution source inventory of actual emission data for the Sarnia area.

The Water Resources Branch reviewed sample information processing needs with respect to the Great Lakes, River Basins and other sampling programs and began development of the new Sample Information System. Conversion of back-log data will make available for analysis eight previous years of data on approximately 150,000 samples and two million tests. The Water Resources Branch also used the Lake Dispersion Model, the Water Quality Simulation Model and the Hydrologic Model in carrying out a number of studies.

The Pollution Control Branch developed the Industrial Water Pollution Monitory Module to process data submitted by companies on their discharges to receiving waters. At present 73 companies are reporting daily, weekly and monthly loadings. There was continued development on the Utilities Requirements Module to facilitate long-range planning of water and sewage plants. The branch also reviewed their pesticides information processing needs and began development of an automated system. The first module associated with Pesticides Licence Control was developed and is now in operation.

The Laboratory Services Branch assessed benefits and cost of automating various information processing functions, defined its systems requirements and developed detail systems and processing specifications for future development of a Laboratory Information System.

Office Services Section:

As a result of reorganization within the Ministry, the section has substantially improved the quality of its services. Records and Forms Management Section has taken an inventory of all Ministry files and produced new file plans as well as developing a Forms Management Program designed to improve, simplify and reduce in number, government forms. Mail and Messenger Services has continued to provide service to head office and the regions despite mail strikes and increased work load.

Approximately 3,200 requisitions, totalling some ten million impressions, were processed by the in-house printing facilities with production efficiency up 20 per cent over last year. Contents of the Ministry's Procedures Manual have been updated to meet the requirements of organizational changes and distribution of the new material was undertaken in April, 1975. Office Services was heavily involved in providing field office accommodation for regional staff and in the consolidation of head office locations.

Library:

The Library Services' holdings expanded. During the year, the libraries subscribed to 350 journals, acquired 3,241 books, and provided computer searches of other libraries' book holdings to obtain information and research material. The libraries loaned 9,293 books, answered 2,710 reference questions and circulated 14,251 periodicals.

FINANCIAL SERVICES BRANCH

During 1974-75 the Financial Services Branch was reorganized into five sections. Imprest bank accounts were established for each regional office to provide for emergency expenditures.

Accounts Payable Section:

The section combines the invoice verification and requisitioning functions. Over the year the work load increased 12 per cent to a total of almost 76,000 invoices and claims.

Appropriation Control and Data Preparation Section:

The prime responsiblity of the section is to ensure that budgetary allocations approved by the Legislature are not exceeded.

In addition, they determine that invoices are properly authorized and charged to the correct appropriation. They also produce monthly financial reports for Ministry management.

Accounting Records and Control Services:

The section is responsible for maintaining records on a cash and accrued basis for plant construction and operation and various subsidiary records. Other functions include payroll audit, cheque distribution, and receipt and custody of cash.

Payroll Section:

Responsible for the processing of all payroll information from Personnel records, the section shared with Personnel the implementation of the Integrated Payroll/Personnel Employees Benefits System.

Capital Financing and Revenue Section:

The section handles the financial management and reporting on the Ministry's utility activities, subsidy programs and cost-sharing agreements. During the year, 47 water and sewage works were completed and capitalized bringing the total to over 600 completed municipal and provincial projects. Fifteen rate reviews were completed for provincial projects. Financial requirements were prepared for Part VII, Environmental Protection Act, and considerable staff time was devoted to the Niagara, York/Durham and Haldimand/Norfolk regional water and sewage works financing.

INFORMATION SERVICES BRANCH

The branch provides a comprehensive communications service to the Ministry and is responsible for the development and implementation of communications activity supporting the Ministry's programs.

Major thrust of the branch in 1974-75 was directed toward the Ministry's regionalization program and included an Ontario-wide advertising campaign to inform the public of the establishment of Ministry regional and district offices and of the range of services provided on a local basis. As a second phase of the campaign, a series of public service announcements was produced and distributed to T.V. and radio in each region.

Special projects included the development of two major display booths -- Water Management, incorporating a cutaway simulation of a floating test laboratory; and Resource Recovery, featuring a working model of a primary process recycling plant. These booths were introduced respectively at the 1975 Canadian National Boat Show and at the Canadian National Exhibition.

During the year in review, the Ministry was represented in seven major exhibitions and in 25 regional fairs. An estimated 500,000 people visited Ministry booths in the total 32 exhibits. More than 1,000,000 litter bags and promotional badges were distributed as part of the Ministry's information program.

A comprehensive review of Ministry publications was completed in September, 1974. As a result, several obsolete publications have been discontinued, others have been updated and reprinted and new publications have been planned for development and production. These include a range of economically produced "Fact Sheets" and a series of brief brochures under the general title: "Who Cares about our Environment."

At the beginning of the year a total of 15 different publications, exclusive of technical reports, were in circulation. At year's end a total of 50 publications

were available to the public. During the year a total of 1,500,000 Ministry publications, including technical reports, were distributed.

While the project was not completed until August, 1975, the branch initiated and arranged production of a special film -- "Women in the Environment" -- as a special Ministry project commemorating International Women's Year.

Another project launched in 1974-75 was the introduction of an "Envirovan," a mobile environmental information centre to be used in the Ministry's educational activities among students of all ages. More than 3,000 teachers and students throughout the province participated in seminars and demonstrations conducted by branch members. It is anticipated that effective use of the Envirovan will expand the program in future.

The branch worked with regional staff to introduce the regional director and local services to the media and the public on a regional basis. Increasing emphasis was placed on local publicity for regional Ministry activities and accomplishments.

LEGAL SERVICES BRANCH

Legal Services Branch remains in residence and very much a part of the Ministry's day-to-day activities despite a government reorganization that has incorporated branch staff into the Ministry of the Attorney General. The change, in effect, recognizes that the branch serves the Ministry in the same way a solicitor serves his client.

A primary function of the branch relates to the responsibilities of the Ministry for enforcement of The Environmental Protection Act, The Ontario Water Resources Act and The Pesticides Act. During the past year 63 charges were before the courts at some stage. In the resulting convictions, fines ranged from $50 to $7,000.

The branch screens cases being considered for prosecution, advises on the best methods of gathering and presenting evidence and provides counsel to present these cases in court. The Ministry operates under relatively new legislation which is still being tested in many ways in practical application and the process of testing in the courts is a valuable part of assessing and improving Ontario's environmental legislation.

Staff of Legal Services Branch serve as counsel, guiding the Ministry's presentations in proceedings before the Environmental Appeal Board, and other hearing agencies.

Other legal services include advice on the appropriate application of the Ministry's powers, on the form of documents and on a variety of orders which can be and are issued by Ministry directors under the existing legislation.

The branch also provides legal advice to the operating branches and prepares Orders-In-Council, regulations, contracts and orders.

PERSONNEL BRANCH

The Personnel Services Branch directed much of its effort during the year to assisting in the reorganization of the Ministry. The reorganization entailed extensive documentation relating to job descriptions, organization charts and distribution of employee information to managers.

The Ministry was one of three ministries chosen by the government for the introduction of a new program by which Payroll, Personnel and Employee Benefits information is to be integrated into a single file for each employee. This provides for greater efficiency in the processing of transactions affecting employees within the organization

Staff Development:

The reorganization of the Ministry resulted in a greater need for certain management skills than in the past. To this end management development courses were developed to provide particular relevance to the Ministry's programs. In addition, the branch co-operated with Regional Operations in a new program of goal setting and review.

In recognition of the specialized function carried out by some professional staff in inspection and abatement, a new job class, environmental technican, was provided in the Ministry.

Recruitment:

A higher rate of turnover than usual in early 1974 coupled with a consciously diminished recruitment activity prior to the reorganization resulted in a stepped-up recruitment program after the reorganization. During the year, 364 new employees joined the Ministry and 239 left. By March 31, 1975, the number of vacancies had been reduced to 88 from a high of 250 the year before.

PROGRAM PLANNING AND EVALUATION BRANCH

The branch conducts operational and policy evaluation studies relating to Environmental Planning, Environmental Control, Resource Recovery and Administrative Support Services. Its two primary goals are to ensure a rational allocation of available resources to programs and to assess program effectiveness and efficiency.

The branch develops the Multi-Year Plan from conceptual stages to the annual estimates and acts as liaison with Policy and Priorities Board, Resources Development Policy Field Committee, Management Board, and other control agencies.

Among its accomplishments in 1974-75 was the completion of a major analysis and assessment of the Capital Construction Program. In addition, the branch established Management-by-Results systems as bases for planning and control of the Capital Construction and the Resource Recovery Programs; refined the program structure to emphasize the Ministry's role in environmental protection, and co-ordinated manpower studies to improve efficiency.

INTERNAL AUDIT BRANCH

The branch was primarily engaged in the performance of finance-oriented audits, including review of the adequacy of procedures and internal controls. Operational audits were carried out in specific areas and upon request. New procedures and controls were reviewed with staff of other branches with the objective of protecting the integrity of Ministry control functions.

boards and commissions

The Environmental Hearing Board

The Environmental Hearing Board, under the authority of The Ontario Water Resources Act and The Environmental Protection Act, this year conducted numerous hearings in communities where sites were designated for sewage treatment and landfill operations. Reports were submitted to the Ministry on 31 hearings concerning sewage treatment sites and 14 dealing with proposed landfill operations.

In addition to its regular hearings, the board, under the chairmanship of D.S. Caverly, was authorized by an Order-in-Council to hold special hearings concerning trans-boundary air pollution between Michigan and Ontario, the Thames River Basin study, lead contamination in the Metropolitan Toronto area, and environmental implications of the Fisher Harbor development.

Recommendations of the board contained in the reports of the hearings were based on the evidence presented at the hearings and its assessment of whether the proposals were in the public interest. These recommendations included approval, approval with suggestions offered for ways of improving the project, approval dependent on the observance of conditions that, in its opinion, would be implemented if the public interest was to be served, no approval, and approval of only part of the proposal. In certain cases the board deferred its recommendation until further information was made available to it.

The Environmental Appeal Board

Formerly known as the Pollution Control Board, the Environmental Appeal Board was established under an amendment to The Environmental Protection Act, 1971.

In accordance with The Environmental Protection Act and The Ontario Water Resources Act, the Environmental Appeal Board provides a mechanism of appeal to persons affected by decisions of officials of the Ministry of the Environment and local health units.

The board, under the chairmanship of I.W. Pasternak, Q.C., is authorized to confirm, alter or revoke Control Orders, Stop Orders, conditions to Certificates of Approval and refusals of Certificates of Approval. During the period from March, 1974 to March, 1975, the Environmental Appeal Board heard 40 appeals, 19 of them dealing with waste disposal sites, ten with air pollution, seven with sewage systems, two with permits to take water, one with well-drilling and one with a landfill operation.

The Farm Pollution Advisory Committee

The Farm Pollution Advisory Committee is comprised of four Ontario farmers, Otto Crone and Harold Eubank of Hagersville, Donald Switzer of Smithville and John Peart of Caledonia. Its primary concern is to provide objective assessments of farm environmental situations. When requested by Ministry officials, the committee visits farms to make recommendations to the farmers about normal farm procedures, for example, manure spreading and cultivation.

As residential growth encroaches upon existing farms, complaints by area residents about farm odour increase: those not settled by Ministry officials are referred to the committee, which in nearly all cases has found a solution acceptable to both parties.

Recommendations by the committee include installation of manure holding tanks, plastic sheet covers for waste

lagoons, improved maintenance of septic tank systems and manure storage systems, and the addition of barn cleaning equipment. Control Orders are issued when recommendations are not implemented within a reasonable time period.

In 1974-75, four complaints were referred to the committee, two in the southeastern region, and one each in the southwestern and west central regions.

The Waste Management Advisory Board

Created by an Order-in-Council in March, 1975, this board, under the chairmanship of Robert H. Woolvett, is an eleven-member citizens' group established to advise the Minister on waste management matters. Its mandate is wide in scope, including the reduction of the quantity of waste products and the development of resource recovery methods.

At its inaugural meeting, the Minister asked the Waste Management Advisory Board to monitor, over a one-year period, the persuasion of soft-drink bottlers and retailers to increase the use of refillable containers for carbonated soft drinks in Ontario. Mr. Newman also requested that the Board assess the results and make whatever recommendations deemed necessary.

The board is also investigating the means of reducing solid wastes generated by liquor and wine bottles.

The Pesticides Advisory Committee

The committee, established in 1970, reviews annually the content and operations of The Pesticides Act, inquires into matters concerning pesticides and pest control, and reviews publications of the Ontario government about pesticides and pest control. Consisting of 13 members drawn from agriculture, industry, universities and government, the committee held 15 full meetings and numerous sub-committee meetings in 1974-75, under its chairman, Mr. K.G. Laver.

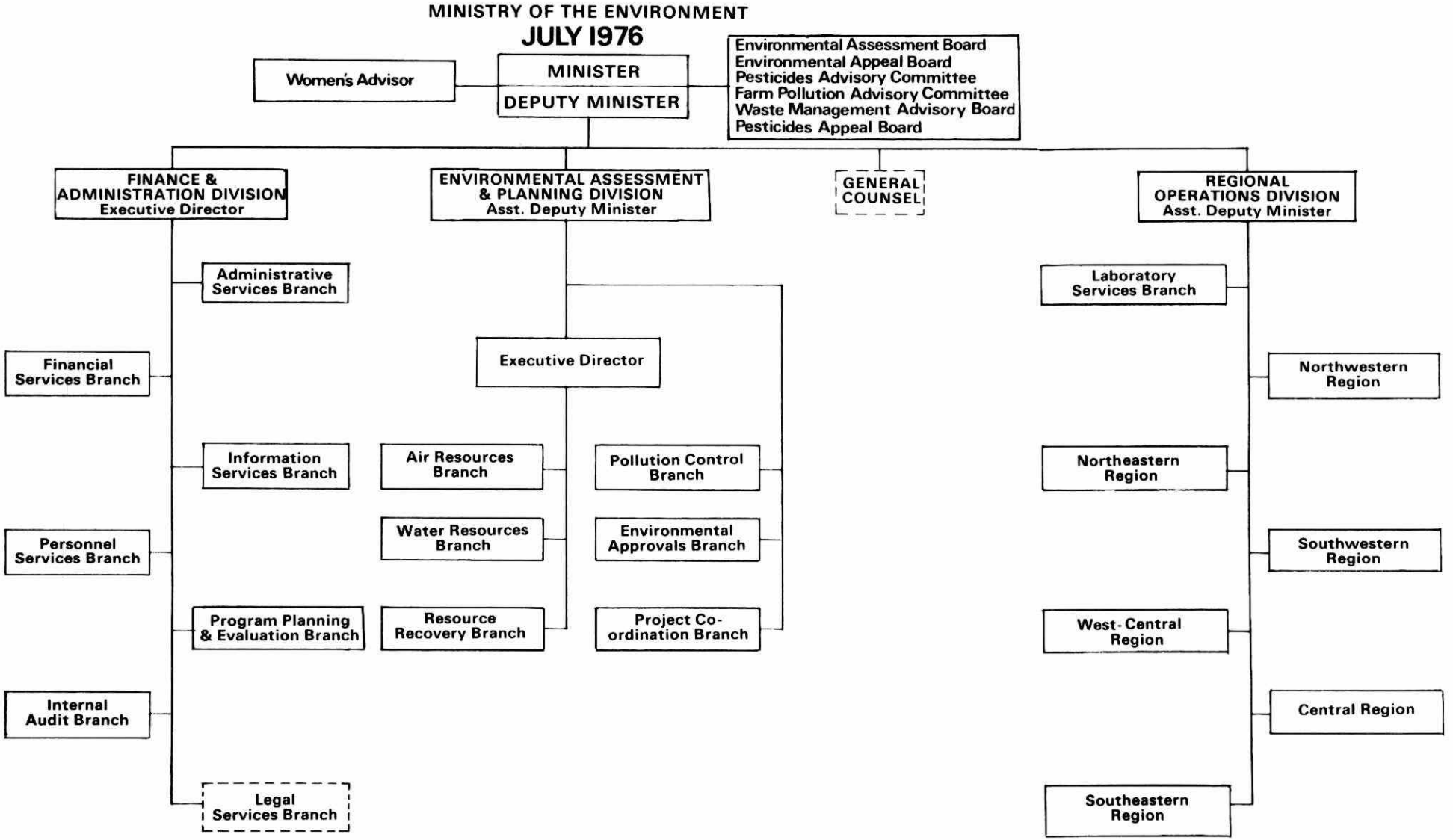
The committee reviewed characteristics of 160 new pesticides, recommending for each the classifications for storage, sale and use. Pesticide containers were examined and recommendations made on modifications for safety, and an investigation of the availability and dependability of personal protective equipment for pesticide users was carried out.

The Committee also reviewed applications from universities for research grants, recommending to the Ministry the funding of 18 projects, totalling $98,360, for the study of potential environmental hazards, the reduction of pesticide input to the environment and the control of diseases and pests of agricultural crops and on biting fly control.

The Pesticides Appeal Board

The Pesticides Appeal Board was established under The Pesticides Act in 1973, and was formerly known as the Pesticides Review Board. In addition to its chairman, I.W. Pasternak, Q.C., it has six members who are drawn from scientific as well as industrial fields.

The Pesticides Appeal Board hears appeals from persons to whom the director has issued Control Orders or Notices of Intent to refuse to issue licenses. It also listens to appeals from persons who have been refused permits to use specific pesticides. The board is authorized to confirm, alter or revoke these Control Orders, licenses and permits where it is considered necessary.


MINISTRY OF THE ENVIRONMENT
JULY 1976
Women's Advisor
MINISTER
DEPUTY MINISTER
Environmental Assessment Board
Environmental Appeal Board
Pesticides Advisory Committee
Farm Pollution Advisory Committee
Waste Management Advisory Board
Pesticides Appeal Board
FINANCE & ADMINISTRATION DIVISION
Executive Director
ENVIRONMENTAL ASSESSMENT & PLANNING DIVISION
Asst. Deputy Minister
GENERAL COUNSEL
REGIONAL OPERATIONS DIVISION
Asst. Deputy Minister
Administrative Services Branch
Financial Services Branch
Information Services Branch
Personnel Services Branch
Program Planning & Evaluation Branch
Internal Audit Branch
Legal Services Branch
Executive Director
Air Resources Branch
Water Resources Branch
Resource Recovery Branch
Pollution Control Branch
Environmental Approvals Branch
Project Co-ordination Branch
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